

US ARMY CORPS
OF ENGINEERS
NEW YORK DISTRICT

DEFENSIVE LIVE FIRE RANGE – 41A OFFSET

NEW YORK DISTRICT

FORT DRUM, NEW YORK

SOLICITATION NUMBER W912DS-05-B-0015

JULY 22, 2005



US Army Corps
of Engineers
New York District

	<p>I HEREBY CERTIFY THAT REVISION A TO THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.</p> <p><i>Wayne E. Brugger</i> 07/22/05 Wayne E. Brugger NO-DY-YR</p> <p>MY LICENSE RENEWAL DATE IS DECEMBER 31, 2006.</p> <p>PAGES OR SHEETS COVERED BY THIS SEAL: C-1 THRU C-7, C-1 THRU C-10, D-1 AND U-1 A-1 THRU A-11, S-1 AND S-2 E-0 THRU E-17, M-1</p>
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	<p>I HEREBY CERTIFY THAT REVISION A TO THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.</p> <p><i>Daniel R. Dreyer</i> 07/22/05 Daniel R. Dreyer NO-DY-YR</p> <p>MY LICENSE RENEWAL DATE IS DECEMBER 31, 2006.</p> <p>PAGES OR SHEETS COVERED BY THIS SEAL: S-1 AND S-2</p>

Designed by: Date: 07/22/05	Drawn by: Date: 07/22/05	Checked by: Date: 07/22/05	Reviewed by: Date: 07/22/05
Submitted by: Date: 07/22/05	Submitted by: Date: 07/22/05	Submitted by: Date: 07/22/05	Submitted by: Date: 07/22/05

DEFENSIVE LIVE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM, NY

COVER SHEET

Sheet
reference
number:
G-1

[illegible]

D:\18232\07-DESIGN\05-DWG\01-CIVIL\SHEETS\G-LG-003.DGN PLOT DATE: 21-JUL-2005

NAME	NORTHING ±	EASTING ±	ELEV.	6" SUBDRAIN PIPE	
				LENGTH	DROP
DP01	1,535,413.81	1,089,031.03	562.3	32'	0.3'
DP02	1,535,525.00	1,089,170.00	562.4	72'	0.2'
DP03	1,535,745.74	1,089,333.97	565.3	116'	0.5'
DP04	1,535,445.00	1,089,365.00	562.2	42'	0.2'
DP05	1,535,208.61	1,089,156.33	561.1	86'	0.3'
DP06	1,535,650.00	1,089,590.00	564.5	32'	0.3'
DP07	1,534,979.15	1,089,134.01	559.8	120'	0.6'
DP08	1,535,119.63	1,089,407.59	563.5	200'	1.5'
DP09	1,535,442.33	1,089,679.49	564.5	210'	1.0'
DP10	1,535,790.00	1,089,850.00	568.3	42'	0.3'

FIRING POSITIONS

TARGET	± NORTHING	± EASTING	ELEVATION
FP01	1,535,534.87	1,088,858.65	572.50
FP02	1,535,549.97	1,088,880.05	572.50
FP03	1,535,584.99	1,088,911.30	573.20
FP04	1,535,618.28	1,088,951.78	573.60
FP05	1,535,669.02	1,088,973.40	573.70
FP06	1,535,694.01	1,089,018.61	573.30
FP07	1,535,744.75	1,089,045.40	573.80
FP08	1,535,769.74	1,089,085.44	572.00
FP09	1,535,818.15	1,089,108.16	573.90
FP10	1,535,845.47	1,089,152.26	571.50
FP11	1,535,895.98	1,089,171.03	573.20
FP12	1,535,924.44	1,089,215.64	573.40

SURVEY CONTROL POINTS (CP)

POINT / SHEET	NORTHING	EASTING	ELEVATION	APPROXIMATE LOCATION
CP 5032 / C-5	1,537,158.82	1,087,262.24	556.4	390' WEST OF RANGE ACCESS RD BL & 40' NORTH OF CL CARR ROAD
CP 5035 / C-5	1,537,495.51	1,087,874.41	555.0	307' EAST OF RANGE ACCESS RD BL & 45' NORTH OF CL CARR ROAD
CP 5033 / C-3	1,534,255.04	1,089,249.29	563.9	NEAR SW CORNER OF PROJECT LIMIT & 20' SOUTHEAST OF CL FULLER ROAD
CP 5034 / C-3	1,535,267.44	1,090,055.40	564.2	340' SOUTHEAST OF TA62 & 20' NORTHWEST OF CL FULLER ROAD

TARGET	± NORTHING	± EASTING	TARGET ELEVATION	GROUND ELEVATION	BERM HEIGHT	FACE TARGET TO
TA01	1,535,428.50	1,088,872.07	563.20	561.8	1.4'	FP03
TA02	1,535,486.99	1,088,948.55	565.40	563.2	2.2'	FORWARD
TA03	1,535,532.91	1,088,965.27	564.70	562.9	1.8'	FORWARD
TA04	1,535,556.21	1,089,024.76	564.50	562.8	1.7'	FORWARD
TA05	1,535,596.49	1,089,047.82	566.20	563.9	2.3'	FORWARD
TA06	1,535,638.45	1,089,082.20	565.80	563.5	2.3'	FORWARD
TA07	1,535,688.06	1,089,102.30	566.20	564.0	2.2'	FORWARD
TA08	1,535,714.18	1,089,149.03	566.60	564.2	2.4'	FORWARD
TA09	1,535,763.79	1,089,169.13	565.90	563.7	2.2'	FORWARD
TA10	1,535,803.10	1,089,188.51	566.20	564.2	2.0'	FORWARD
TA11	1,535,841.27	1,089,236.23	566.10	563.9	2.2'	FORWARD
TA12	1,535,862.36	1,089,277.04	568.70	566.4	2.3'	FORWARD
TA13	1,535,441.84	1,088,924.05	564.20	562.6	1.6'	FP03
TA14	1,535,405.72	1,088,960.56	561.80	559.6	2.2'	FP03
TA15	1,535,443.21	1,088,984.31	562.30	560.3	2.0'	FORWARD
TA16	1,535,526.43	1,089,064.74	565.70	563.5	2.2'	FORWARD
TA17	1,535,557.79	1,089,097.28	565.40	563.2	2.2'	FORWARD
TA18	1,535,611.71	1,089,133.75	566.20	563.9	2.3'	FORWARD
TA19	1,535,631.15	1,089,183.83	563.80	561.6	2.2'	FORWARD
TA20	1,534,996.52	1,089,311.54	565.20	563.0	2.2'	FP03
TA21	1,535,714.65	1,089,250.59	565.20	563.0	2.2'	FORWARD
TA22	1,535,772.96	1,089,279.71	568.40	566.2	2.2'	FORWARD
TA23	1,535,826.10	1,089,316.95	569.70	567.5	2.2'	FORWARD
TA24	1,535,868.37	1,089,341.32	* 571.90	569.7	2.2'	FP10
TA25	1,535,293.80	1,088,879.37	561.90	559.7	2.2'	FP03
TA26	1,535,331.20	1,088,911.80	560.60	558.4	2.2'	FP03
TA27	1,535,380.90	1,088,984.92	560.70	558.5	2.2'	FP03
TA28	1,535,417.16	1,088,996.99	561.50	559.4	2.1'	FORWARD
TA29	1,535,432.23	1,089,058.24	563.70	561.5	2.2'	FORWARD
TA30	1,535,459.87	1,089,122.15	563.90	561.7	2.2'	FORWARD
TA31	1,535,504.86	1,089,153.57	563.60	561.4	2.2'	FORWARD
TA32	1,535,544.81	1,089,202.75	562.60	560.4	2.2'	FORWARD
TA33	1,535,588.71	1,089,280.21	563.70	561.5	2.2'	FORWARD
TA34	1,535,633.97	1,089,308.75	566.00	563.8	2.2'	FORWARD
TA35	1,535,673.54	1,089,336.92	566.90	564.7	2.2'	FORWARD
TA36	1,535,744.00	1,089,366.16	568.00	565.8	2.2'	FORWARD
TA37	1,535,785.86	1,089,382.01	568.80	566.5	2.3'	FP10
TA38	1,535,768.88	1,089,454.58	* 567.50	564.9	2.6'	FP10
TA39	1,535,831.28	1,089,506.69	* 568.70	564.3	4.4'	FP10
TA40	1,535,885.69	1,089,528.95	* 569.20	564.6	4.6'	FP10
TA41	1,535,018.00	1,088,918.15	559.70	557.5	2.2'	FP03
TA42	1,535,055.87	1,089,013.74	561.50	559.3	2.2'	FP03
TA43	1,535,111.54	1,089,117.20	562.80	560.6	2.2'	FP03
TA44	1,535,180.52	1,089,222.87	563.50	561.3	2.2'	FP03
TA45	1,535,271.21	1,089,324.13	563.90	561.7	2.2'	FORWARD
TA46	1,535,345.46	1,089,405.48	564.90	562.7	2.2'	FORWARD
TA47	1,535,407.28	1,089,482.26	565.60	563.4	2.2'	FORWARD
TA48	1,535,481.92	1,089,546.45	565.40	563.2	2.2'	FORWARD
TA49	1,535,551.74	1,089,602.24	564.70	562.4	2.3'	FORWARD</

TWO ADDITIONAL TARGET EMPLACEMENTS ARE REQUIRED FOR PROTECTION OF THE BATTERY/GENERATOR FOR RANGE LIMIT LIGHTS.
THE LOCATION WILL BE DETERMINED IN THE FIELD BY THE CONTRACTING OFFICER.

1. DISTANCE AND BEARINGS LISTED ARE FROM THE PREVIOUS POINT.
2. SURVEY DATUM STATE PLANE SYSTEM NY CENTRAL NAD83.
3. THE ACCURACY OF THE AERIAL MAPPING CONTOURS IN THIS SET ARE APPROXIMATELY 6 INCHES.
4. TARGETS 24,38,39,40,51,52,62,63,64,65,66 ARE LOCATED OUTSIDE THE LIMIT OF 1' CONTOUR MAPPING. THESE TARGETS ARE LOCATED ON THE SLOPE OF THE RIDGE. IF AN UNDISCLOSED RIDGE EXISTS THAT BLOCKS THE LOS, THE TARGET SHALL BE RAISED. RAISING THE TARGET UP TO 2.5' SHALL NOT CONSTITUTE EXTRA WORK.
5. FACE FORWARD MEANS PLACE TARGET PERPENDICULAR TO A LINE FROM FPO1 TO FPO2.

FT MARKER	SOIL DESCRIPTION	REMARKS	DEPTH
25	Brown, Clayey SILT and fine SAND, trace Gravel. (ML-SM)	Clay increases with depth	TD = 3.4'
75	Brown, Clayey SILT and fine SAND (ML-SM)	Clay increases with depth	TD = 3.4'
125	Brown, SILT and fine SAND (ML-SM)	Clay increases with depth	TD = 3.4'
175	Brown SILT and fine SAND ML-SM)	Clay increases with depth	TD = 3.4'
225	Brown SILT, trace-little fine Sand, trace Gravel (ML)	Clay increases with depth	TD = 3.4'
275	Brown SILT, trace-little fine SAND, trace Gravel (ML)	Clay increases with depth	TD = 3.4'
325	Brown SILT, trace-little fine SAND (ML)	Clay increases with depth	TD = 3.4'
375	Dark brown, SILT and CLAY, little Sand (CL-ML)	Brushey Area	TD = 3.4'
425	Brown SILT and SAND (ML-SM) overlying Silty CLAY (CL)		TD = 3.4'
475	Brown, SILT and fine SAND (ML-SM).	Clay increases with depth	TD = 3.4'
525	Brown, Clayey SILT (ML)	Brushey Area	TD = 3.4'
575	Dark brown, Silty CLAY to CLAY (CL)	Brushey Area	TD = 3.4'
625	Brown Silty CLAY to CLAY (CL)	Swampy Area	TD = 3.4'
675	Brown Silty CLAY to CLAY (CL)		TD = 3.4'
710-831	ROCK OUTCROP AREA	Some Pockets of Overburden i.e. location 775	ROCK
775	Brown, Silty CLAY, Gravel and Cobbles	Small Overburden Pocket	R = 2.0'
850	Black organic Topsoil (OL) overlying brown, Silty CLAY to CLAY (CL)		TD = 3.4'
900	Black Topsoil (OL) overlying brown Silty CLAY, some Gravel and Cobbles (CL)		R = 2.8'
905-1320	ROCK OUTCROP AREA	Some Pockets of Overburden i.e. locs 950 and 1300	ROCK
950	Brown-red, Silty CLAY, some Gravel and Cobbles (CL)	Small Overburden Pocket	R = 1.8'
1300	Brown-red, Silty CLAY (CL)	Small Overburden Pocket	R = 1.9'
1350	Brown, Silty CLAY (CL)		TD = 3.4'
1400	Brown, Silty CLAY to CLAY (CL)		TD = 3.4'
1450	Brown-black Topsoil (OL)	Rock Outcrops within 5'	R = 0.7'
1453 -1463	ROCK OUTCROP AREA		ROCK
1500	Black Topsoil (OL) overlying brown Silty CLAY (CL)		R = 1.0'
1550	Brown, Clayey SILT (ML)	Clay increases with depth	TD = 3.4'
1600	Brown, Silty CLAY (CL)		TD = 3.4'
1630	Black Topsoil (OL)	Swampy Area	R = 1.6'
1645 - 1710	ROCK OUTCROP AREA		ROCK
1725	Brown, Clayey SILT, some Gravel and Cobbles (ML)		TD = 3.4'
1800	Brown, Clayey SILT (ML)	Clay increases with depth	TD = 3.4'
1850	Brown, Clayey SILT (ML)	Grassey Open Area	TD = 3.4'
1900	Brown, Clayey SILT (ML) overlying CLAY (CL)		TD = 3.4'
1950	Brown, Clayey SILT, some Gravel and Cobbles (ML)		TD = 3.4'
2000	Brown, Clayey SILT, some Gravel (ML) overlying CLAY (CL)	Hard Drilling	TD = 3.4'
2050	Brown SILT and CLAY (CL-ML)		TD = 3.4'
2056-2073	ROCK OUTCROP AREA		ROCK
2100	Brown, Clayey SILT some Gravel (ML)		TD = 3.4'
2125	Brown, Clayey SILT some Gravel (ML)	Clay increases with depth	TD = 3.4'
2135-2550	ROCK OURCROP AREA	Some Overburden Pockets i.e. location 2150	ROCK
2150	Brown, fine SAND and SILT, some Cobbles at base (SM-ML)	Overburden Pocket	TD = 3.4'

Samples were dry to moist at the top and dry to damp at the base. No groundwater was encountered.

ATLANTIC TESTING LABORATORIES, Limited												
Subsurface Investigation												
Boring No.: MW-1	Report No.: CD2472-S-05				Sheet 2 of 2							
DEPTH METHOD OF ADVANCE	SAMPLE NO.	DEPTH OF SAMPLE		SAMPLE TYPE	BLOWS ON SAMPLER PER 8" 2" O.D. SAMPLER				DEPTH OF CHANGE	CLASSIFICATION OF MATERIAL	RECOVERY	
		From	To		3	4	5					
26	9	25.0	27.0	SS		3	3	4	5	22.0	Similar Soil	24
27												
28												
29												
30												
31												
32												
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Notes:
1. Temporary observation well installed at 25.0 feet. Refer to attached well diagram.

ATLANTIC TESTING LABORATORIES, Limited

Monitor Well Replacement

Client: Stanley Consultants

Project: Monitor Well Replacement

Proposed Wetland

Fort Drum, New York

Report No.: CD2472-9-05

Well Location: See Boring Location Plan

Monitoring Well No.: MMW-1 Sheet 1 of 2

Nothing: _____ Easting: _____

Ground Elevation: _____

Top of Casing Elevation: _____

PVC Elevation: _____

Boring Advanced By: 4-1/4" Auger

Start Date: 6/3/2005 Finish Date: 6/3/2005

Date	Time	Depth	Casing at
<u>6/3/2005</u>	<u>AM</u>	<u>DRY</u>	<u>OUT</u>
<u>6/3/2005</u>	<u>PM</u>	<u>DRY</u>	<u>10'</u>
<u>6/3/2005</u>	<u>PM</u>	<u>28.8'</u>	<u>25'</u>
<u>6/3/2005</u>	<u>PM</u>	<u>19.2</u>	<u>TOW#25'</u>

Installation Details

Installation Procedure

1. Excavate to 25.0' depth.

2. Place 4" locking protector cap.

3. Place 2" PVC pipe.

4. Place cement bentonite grout.

5. Place bentonite chips.

6. Place 0 moiré sand.

7. Place 2" PVC 0.010" continuous machine slot screen.

4" Locking Protector Cap

2" PVC Pipe

Cement Bentonite Grout

Bentonite Chips

0 Moiré Sand

2" PVC 0.010" Continuous Machine Slot Screen

DEPTH (feet)

6.0

8.0

10.0

25.0

Similar Soil

Similar Soil

3" TOPSOIL & ORGANIC MATERIAL

Greyish-Brown CLAY; little SILT & SAND; trace ORGANIC MATERIAL (roots, wet, plastic)

Brown SILT; some CLAY; trace f SAND (moist, moderately plastic)

Brown SILT; some CLAY; trace f SAND (moist, moderately plastic)

Similar Soil

Brown CLAY; some SILT; trace m GRAVEL; trace f SAND (wet, plastic)

Brown CLAY; some SILT; trace f SAND (wet, plastic)

Grey CLAY; little SILT; trace f SAND (wet, plastic)

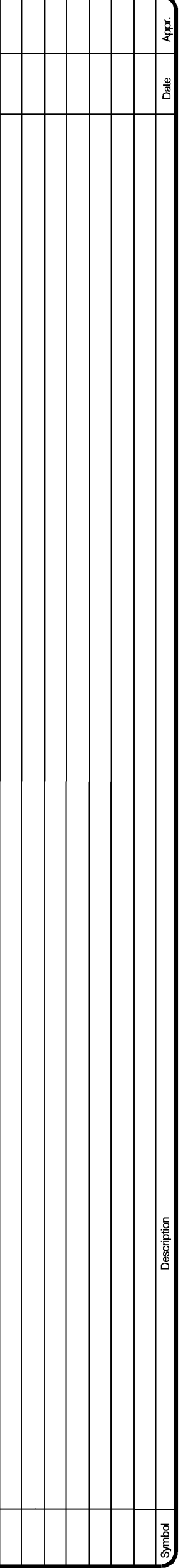
Boring terminated at 27.0 feet.


Notes:

ATLANTIC CONSULTING, ATLANTIC 03/11/05

DEFENSIVE LIVE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM NY

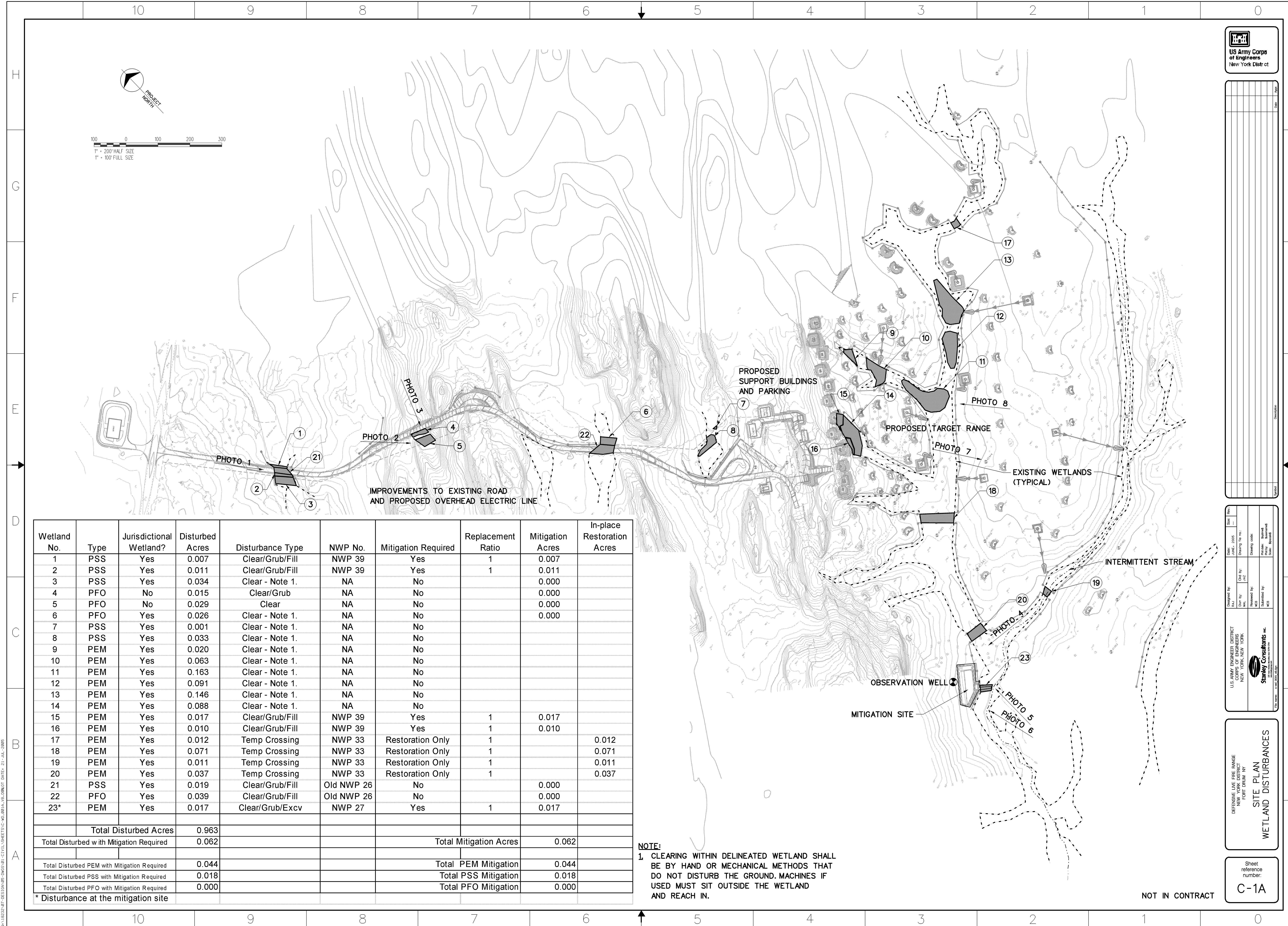
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number:
G-7



 Stanley Consultants INC. 1000 West 12th Street Suite 1000 Vancouver, BC V6H 2K6 Canada Tel: 604.681.2500 Fax: 604.681.2501 Email: info@stanleyconsultants.com	U.S. Corps of Engineers New York, New York	Drawn by: MTH	Drawing code:
	P&I Issued by: MTH	Drawing no: 042	Date: 2006

SITE PLAN - KEY MAP

Sheet
reference
number:
C-1



Wetland No.	Type	Jurisdictional Wetland?	Disturbed Acres	Disturbance Type	NWP No.	Mitigation Required	Replacement Ratio	Mitigation Acres	In-place Restoration Acres
1	PSS	Yes	0.007	Clear/Grub/Fill	NWP 39	Yes	1	0.007	
2	PSS	Yes	0.011	Clear/Grub/Fill	NWP 39	Yes	1	0.011	
3	PSS	Yes	0.034	Clear - Note 1.	NA	No		0.000	
4	PFO	No	0.015	Clear/Grub	NA	No		0.000	
5	PFO	No	0.029	Clear	NA	No		0.000	
6	PFO	Yes	0.026	Clear - Note 1.	NA	No		0.000	
7	PSS	Yes	0.001	Clear - Note 1.	NA	No			
8	PSS	Yes	0.033	Clear - Note 1.	NA	No			
9	PEM	Yes	0.020	Clear - Note 1.	NA	No			
10	PEM	Yes	0.063	Clear - Note 1.	NA	No			
11	PEM	Yes	0.163	Clear - Note 1.	NA	No			
12	PEM	Yes	0.091	Clear - Note 1.	NA	No			
13	PEM	Yes	0.146	Clear - Note 1.	NA	No			
14	PEM	Yes	0.088	Clear - Note 1.	NA	No			
15	PEM	Yes	0.017	Clear/Grub/Fill	NWP 39	Yes	1	0.017	
16	PEM	Yes	0.010	Clear/Grub/Fill	NWP 39	Yes	1	0.010	
17	PEM	Yes	0.012	Temp Crossing	NWP 33	Restoration Only	1		0.012
18	PEM	Yes	0.071	Temp Crossing	NWP 33	Restoration Only	1		0.071
19	PEM	Yes	0.011	Temp Crossing	NWP 33	Restoration Only	1		0.011
20	PEM	Yes	0.037	Temp Crossing	NWP 33	Restoration Only	1		0.037
21	PSS	Yes	0.019	Clear/Grub/Fill	Old NWP 26	No		0.000	
22	PFO	Yes	0.039	Clear/Grub/Fill	Old NWP 26	No		0.000	
23*	PEM	Yes	0.017	Clear/Grub/Excav	NWP 27	Yes	1	0.017	
Total Disturbed Acres			0.963						
Total Disturbed with Mitigation Required			0.062					0.062	
Total Disturbed PEM with Mitigation Required			0.044					0.044	
Total Disturbed PSS with Mitigation Required			0.018					0.018	
Total Disturbed PFO with Mitigation Required			0.000					0.000	
* Disturbance at the mitigation site									

NOTE:
1. CLEARING WITHIN DELINEATED WETLAND SHALL BE BY HAND OR MECHANICAL METHODS THAT DO NOT DISTURB THE GROUND. MACHINES IF USED MUST SIT OUTSIDE THE WETLAND AND REACH IN.

Designed by	Drawn by	Checked by	Reviewed by	Submitted by
DAI	ML	JAZ	ML	WEB

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
NEW YORK DISTRICT
NEW YORK, NEW YORK

Stanley Consultants Inc.
100 West 10th Street
New York, NY 10011-3608
Tel: 212-692-1000
Fax: 212-692-1001

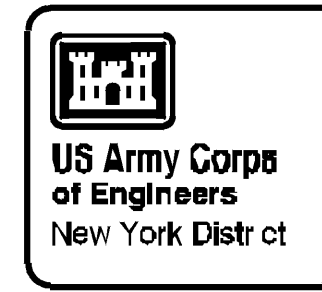
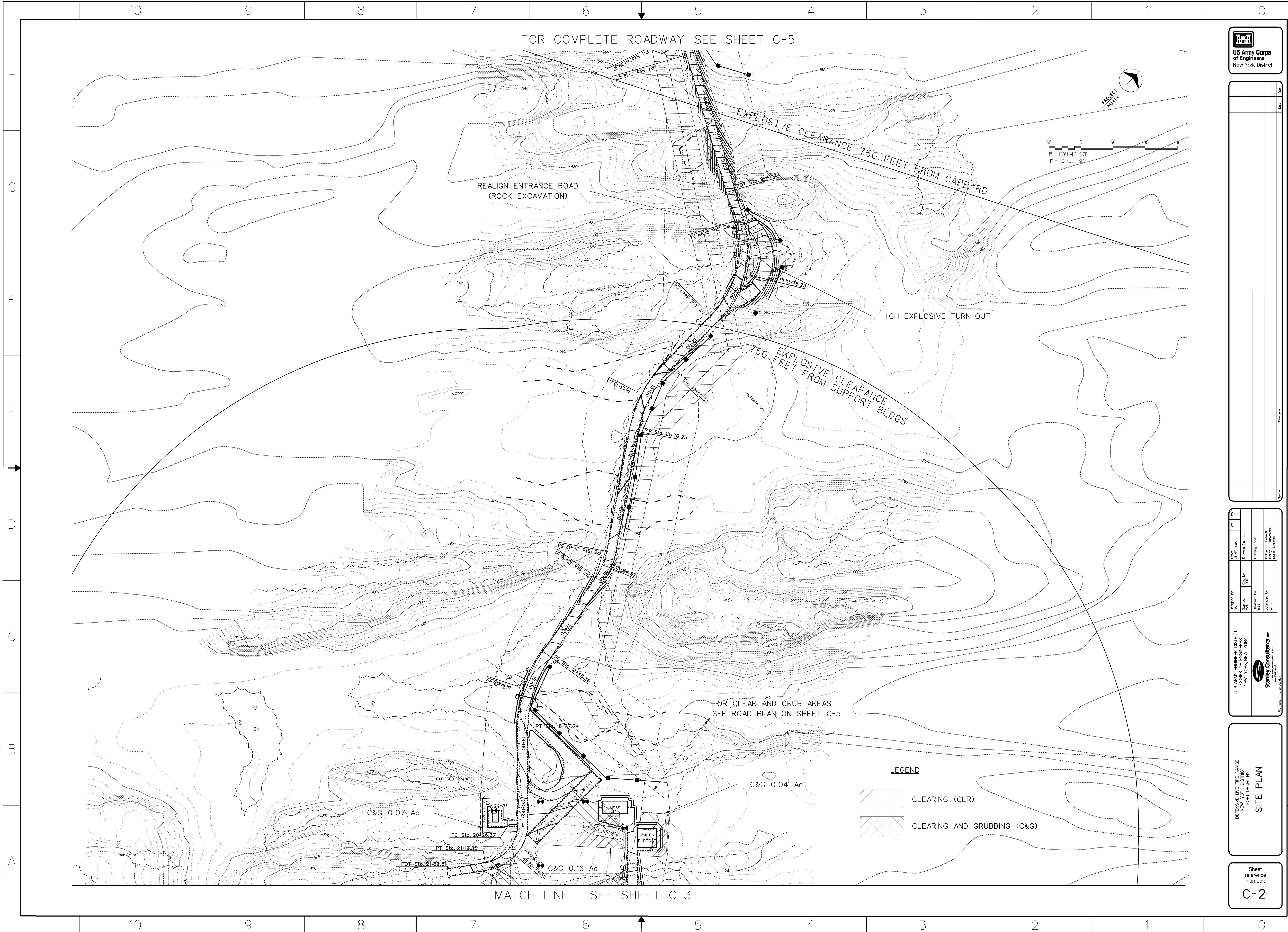
DEFENSIVE LIVE FIRE RANGE
FORT DRUM, NY

SITE PLAN
WETLAND DISTURBANCES

Sheet reference number:
C-1A

NOT IN CONTRACT

04-18232-07 DESIGN & DRAWING CIVIL SHEET C-3P-002.DGN PLOT DATES: 21-JUL-2005



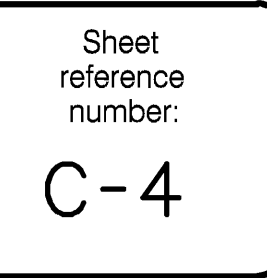
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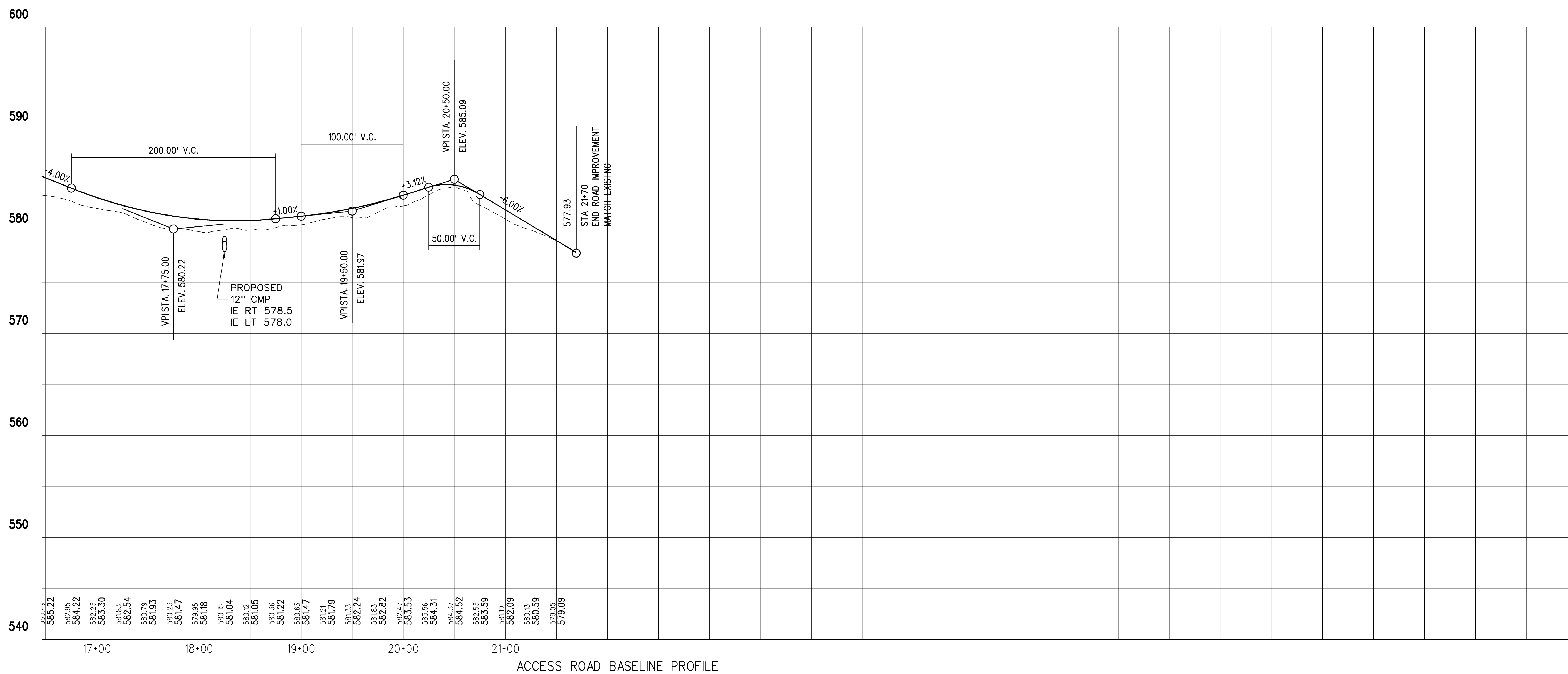
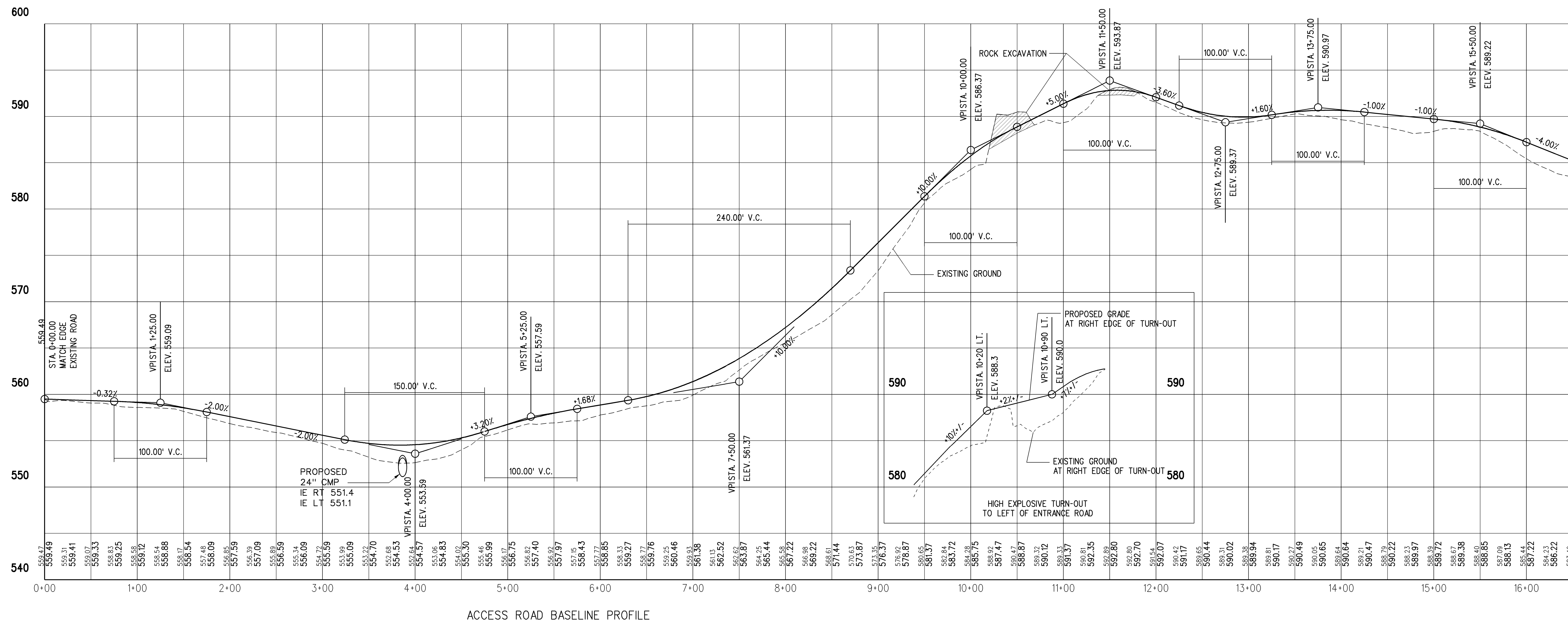
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS NEW YORK DISTRICT NEW YORK, NY	Designed by DAW	Checked by DAW	Drawn by DAW	Scale 1" = 100'
Stanley Consultants Inc. 100 West Street New York, NY 10038	Reviewed by DAW	Approved by DAW	Submitted by DAW	Revised by DAW

DEFENSIVE LINE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM NY
SITE PLAN

Sheet
reference
number:
C-2








**US Army Corps
of Engineers**
New York Distr ct

[illegible]

<div>U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS NEW YORK, NEW YORK</div> <div> Stanley Consultants Inc. 125 West 125th Street New York, NY 10030-3298 Tel: 212 692 6000 Fax: 212 692 6001 E-mail: info@stanley.com</div>	Designed by		DATE	SIZE: 11" x 17"
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Submitted by		File code:	Revised	
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DEFENSIVE LINE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM NY

Sheet
reference
number:
C-6



DETONATION PIT
NO SCALE



- NOTES:
1. CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSIN 28 DAYS.
 2. EMBLEMMENTS SHALL BE CONSTRUCTED OF REINFORCED CONCRETE; CONCRETE STRUCTURES SHALL BE PRECAST OR CAST-IN-PLACE.
 3. ALL REINFORCING STEEL SHALL BE PER ASTM A615, GRADE 60.
 4. AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REVEGETATED CONSISTENT WITH THE NATURAL SURROUNDINGS.



NO SCALE



NO SCALE

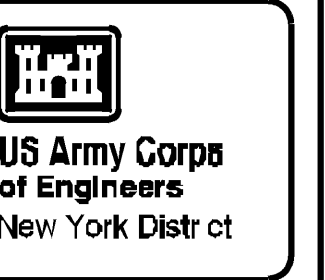
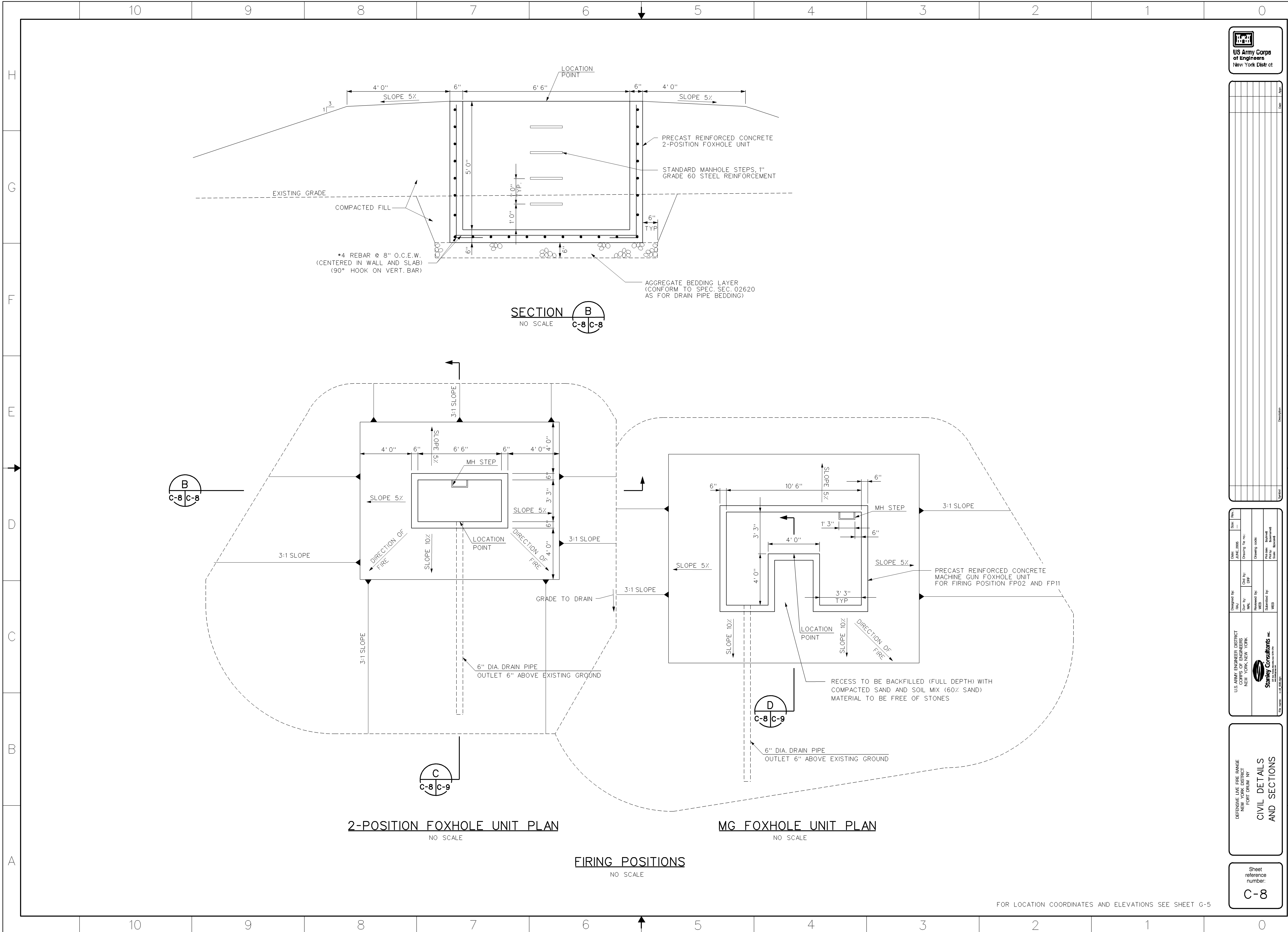


STATIONARY INFANTRY TARGET EMPLACEMENT

NO SCALE

FOR LOCATION COORDINATES AND ELEVATIONS SEE SHEET G-5

01-18222-07 DESIGN/08-0405/01-CIVIL SHEETS-C-01 0808-004 PLOT DATE: 21-JUL-2005



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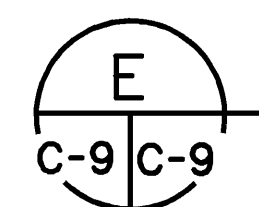


Diagram illustrating the trench bedding and backfill requirements:

- COMPACTED FILL** (top and bottom layers)
- DRAIN PIPE** (horizontal line entering the trench)
- BEDDING** (dashed rectangular area surrounding the pipe)
- 1' 0" TYP** (typical width of the bedding layer)
- INITIAL BACKFILL TO BE FREE OF STONE GREATER THAN 1"** (indicated by an arrow pointing to the bedding area)
- 1' 0" MIN** (minimum depth of the bedding layer)
- IF CMP IS USED BEDDING MATERIAL MAY BE ELIMINATED, THEN SHAPE THE TRENCH BOTTOM TO CONFORM TO PIPE.** (Note on bedding elimination)
- EXISTING GRADE** (indicated by a horizontal line at the top right)

4' 0"

DIRECTION AND ANGLE OF FIRE

SLOPE 10%

12"

1/3

4' 0" (RECESS)

5' 0"

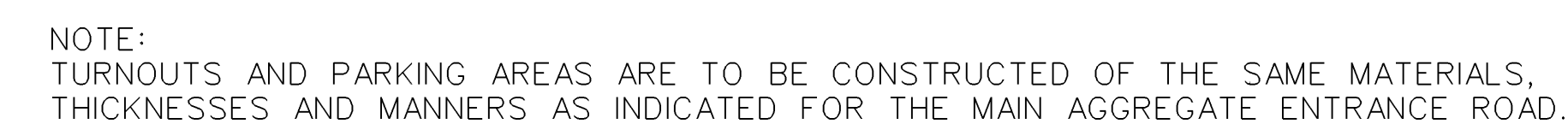
LOCATION POINT

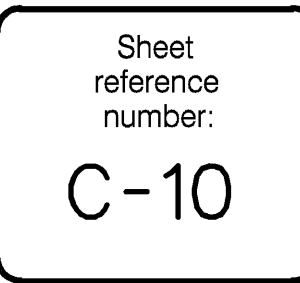
COMPACTED SAND AND SOIL MIX (60% SAND)
MATERIAL TO BE FREE OF STONES

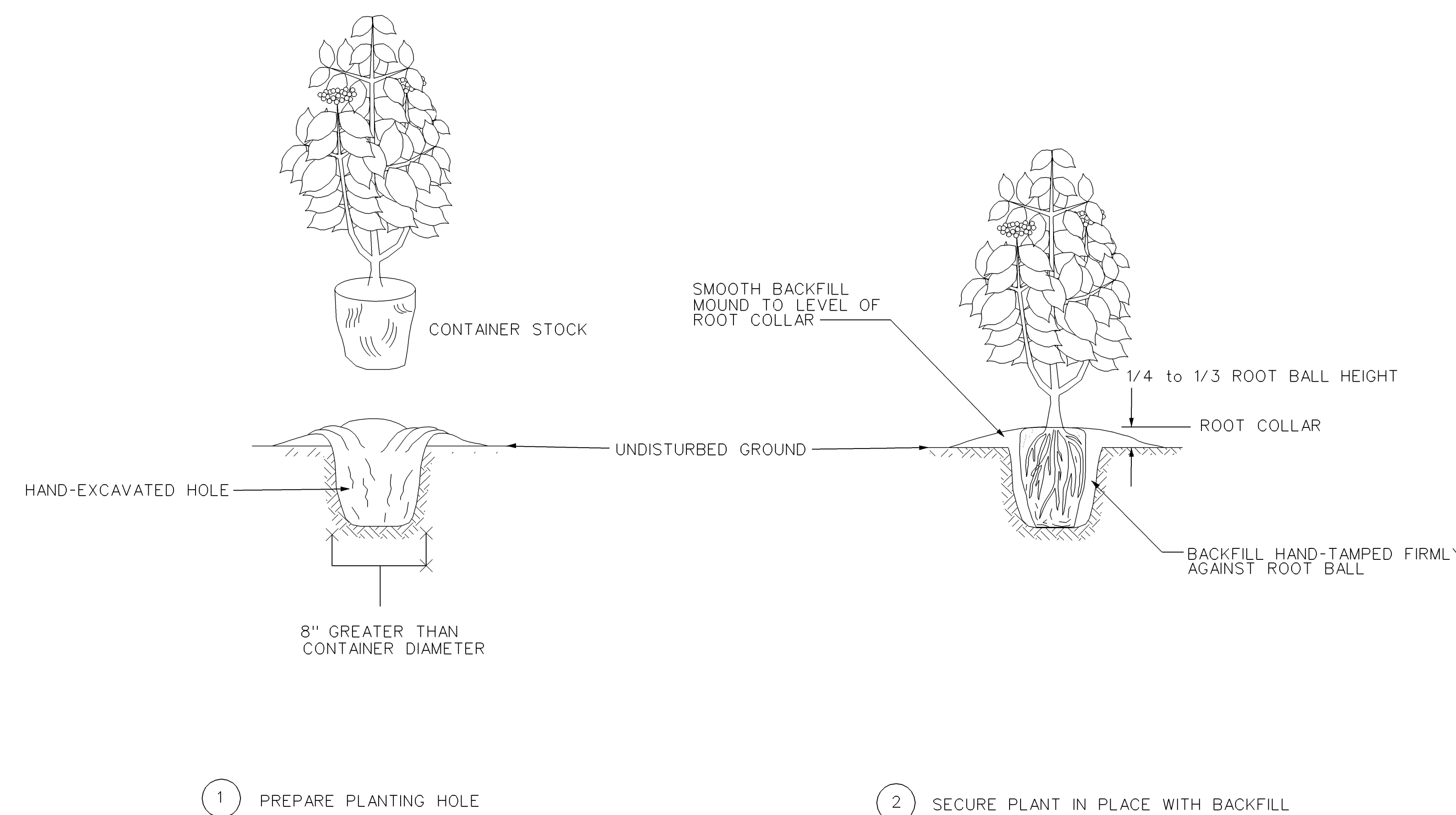
COMPACTED FILL
MATERIAL TO BE FREE OF STONES
GREATER THAN 1"

*#4 REBAR @ 8" O.C.E.W.
(CENTERED IN WALL AND SLAB
(90° HOOK ON VERT. BAR)

MG FOXHOLE UNIT SHALL HAVE MH STEPS
SIMILAR TO 2-POSITION FOXHOLE UNIT







PLAN



STRAW BALE DIKE

BEDDING DETAIL

ANCHORING DETAIL

CONSTRUCTION SPECIFICATIONS

1. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
3. INSPECTION SHALL BE FREQUENT AND REPAIR/REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

SILT FENCE

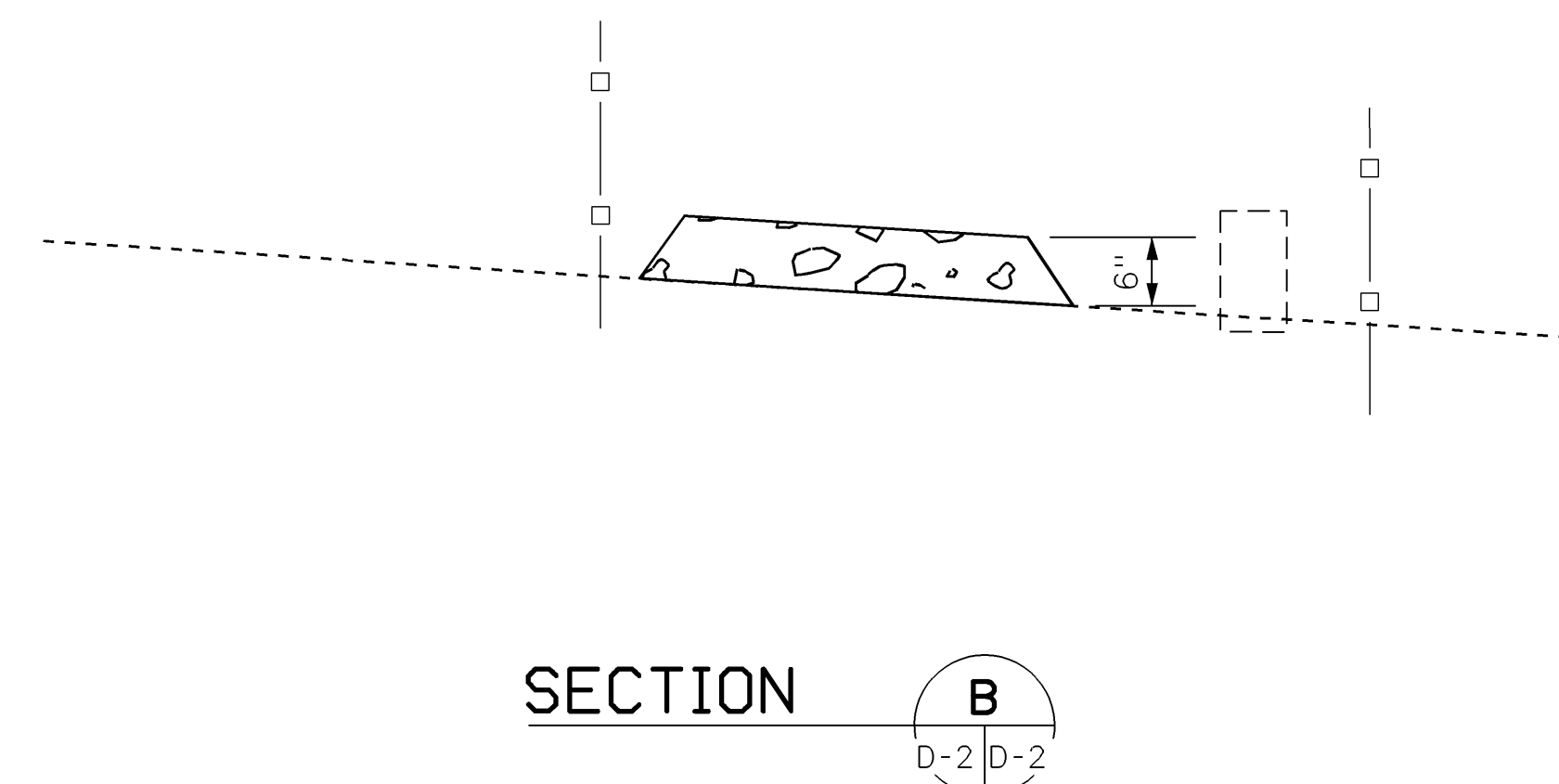
PERSPECTIVE VIEW

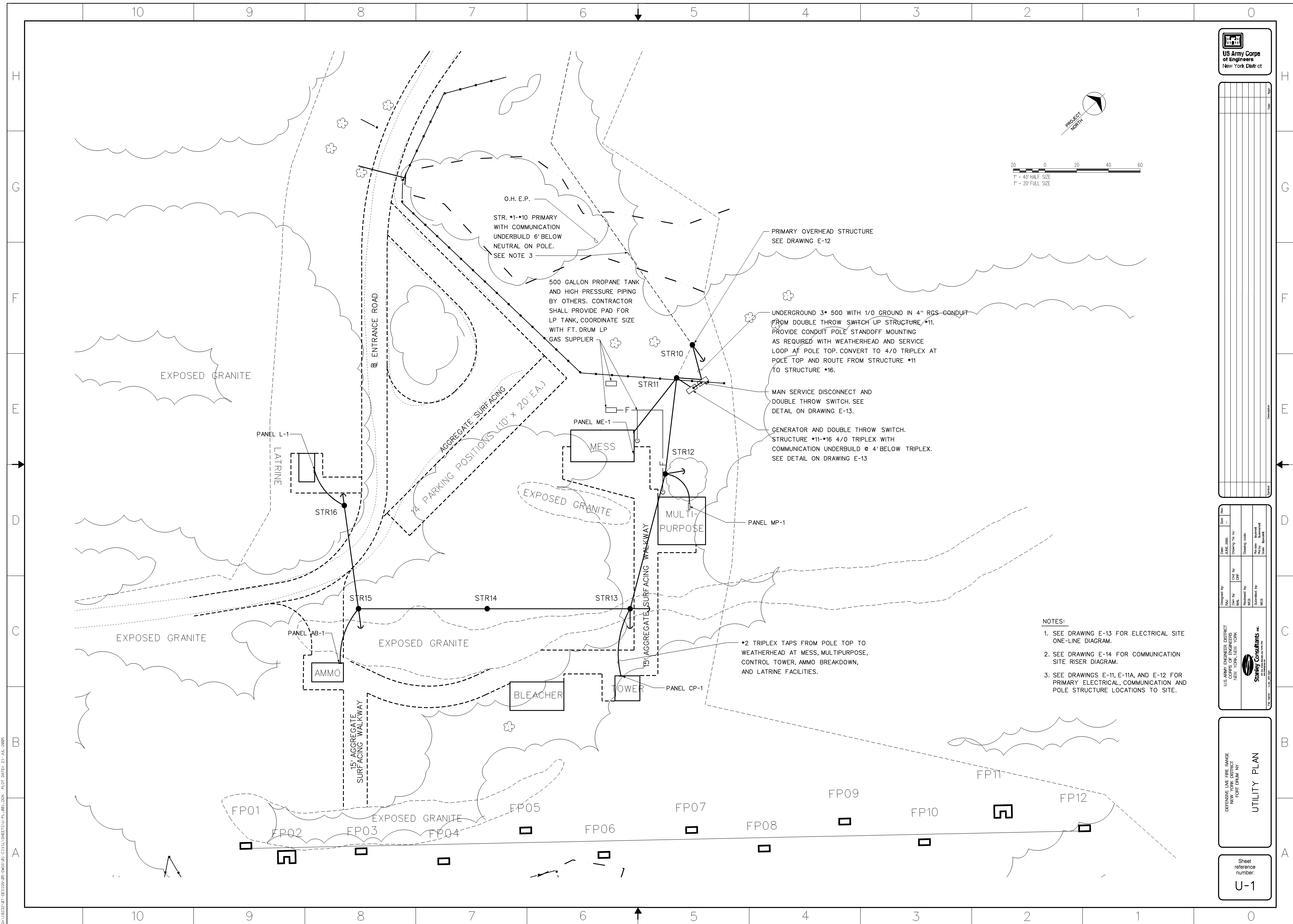
JOINING TWO ADJACENT SILT FENCE SECTIONS

CONSTRUCTION SPECIFICATIONS

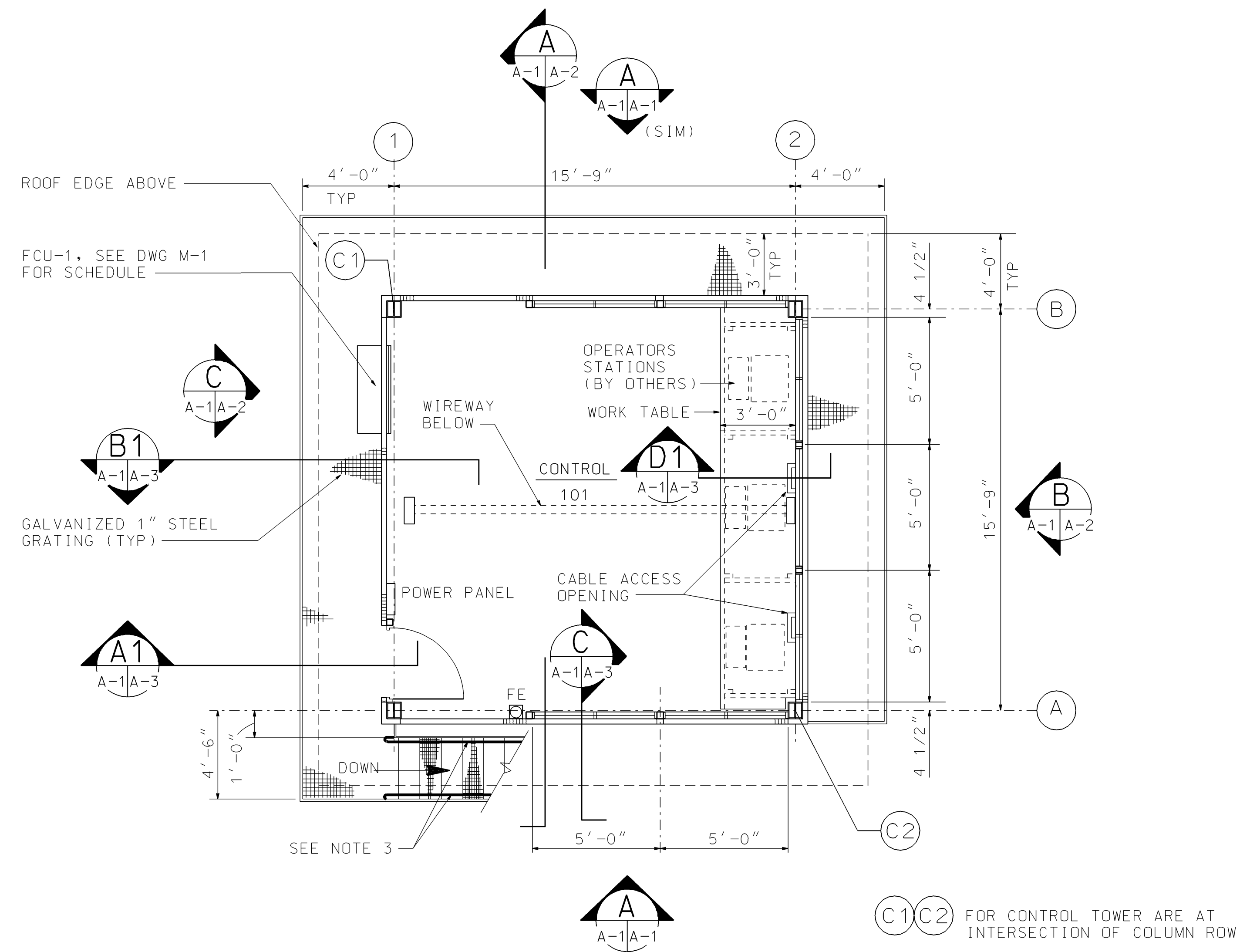
1. FENCE POSTS SHALL BE A MINIMUM OF 3' LONG DRIVEN 16" MINIMUM INTO THE GROUND. WOOD POSTS SHALL BE 1 1/2" X 1 1/2" SQUARE (MINIMUM) CUT, OR 2" DIAMETER (MINIMUM) ROUND AND SHALL BE OF SOUND QUALITY HARDWOOD. STEEL POSTS WILL BE STANDARD T OR U SECTION WEIGHTING NOT LESS THAN 0.5 LB PER LINEAR FOOT.
2. FENCE SHALL BE WOVEN WIRE, 14 GA. WITH 6" MAX. MESH OPENING.
3. FILTER CLOTH SHALL BE FILTER X, MIRAFIL 100X, STABILINKA T140N OR APPROVED EQUAL.
4. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH TIES OR STAPLES.
5. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
6. WHERE ENDS OF FILTER CLOTH COME TOGETHER, THEY SHALL BE OVERLAPPED A MINIMUM OF 24". FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS.
7. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL EVENT AND MAINTAINED WHEN BULGES OCCUR OR WHEN SEDIMENT ACCUMULATION REACHES 50% OF THE FILTER CLOTH HEIGHT.
8. THE ABOVE INDIVIDUAL UNITS MAY BE SUBSTITUTED WITH PREFABRICATED SECTIONS. (BEDFAB, ENVIROFENCE OR APPROVED EQUAL)

- GENERAL NOTES:
1. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY. CLEAR AND GRUB ONLY THAT WHICH IS REQUIRED TO CONSTRUCT CONTROL MEASURES. THESE MEASURES WILL SERVE AS A LIMIT OF DISTURBANCE AS NO EARTH DISTURBING ACTIVITIES MAY TAKE PLACE BEYOND THESE CONTROLS.
 2. SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLANS, 10' BEYOND THE WETLAND DELINEATION MARKERS OR 5' BEYOND THE PROPOSED TOE OF FILL. IT SHOULD BE INSPECTED PERIODICALLY AND AFTER EACH RAINFALL EVENT AND SHOULD BE REPLACED WHEN TORN OR WHEN SEDIMENT REACHES 50% OF THE FABRIC HEIGHT. INSPECTIONS SHALL COMPLY WITH NPDES PERMIT.
 3. NO WORK, CLEARING OR OTHERWISE, SHALL TAKE PLACE OUTSIDE THE DESIGNATED CONTRACTOR'S WORKING AREA. ONLY CLEARING OF TREES AND BRUSH MAY TAKE PLACE WITHIN THIS AREA AS DESIGNATED ON THE PLANS.
 4. EXCAVATED MATERIALS SHALL BE STORED SUCH THAT SEDIMENTS ARE PREVENTED FROM ENTERING THE WATERWAY; I.E., SEDIMENT PERIMETER CONTROLS MAY BE NECESSARY.
 5. EXCAVATED SUBSOIL AND TOPSOIL SHALL BE KEPT SEPARATE AND REPLACED IN THEIR NATURAL ORDER.
 6. SEDIMENT CONTROL DEVICES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED AREAS ARE STABILIZED AND THE CONTRACTING OFFICER APPROVES THEIR REMOVAL. ALL REMOVAL CONTOURS SHALL BE RETURNED TO THEIR ORIGINAL GRADE UNLESS APPROVED OTHERWISE BY THE CONTRACTING OFFICER.



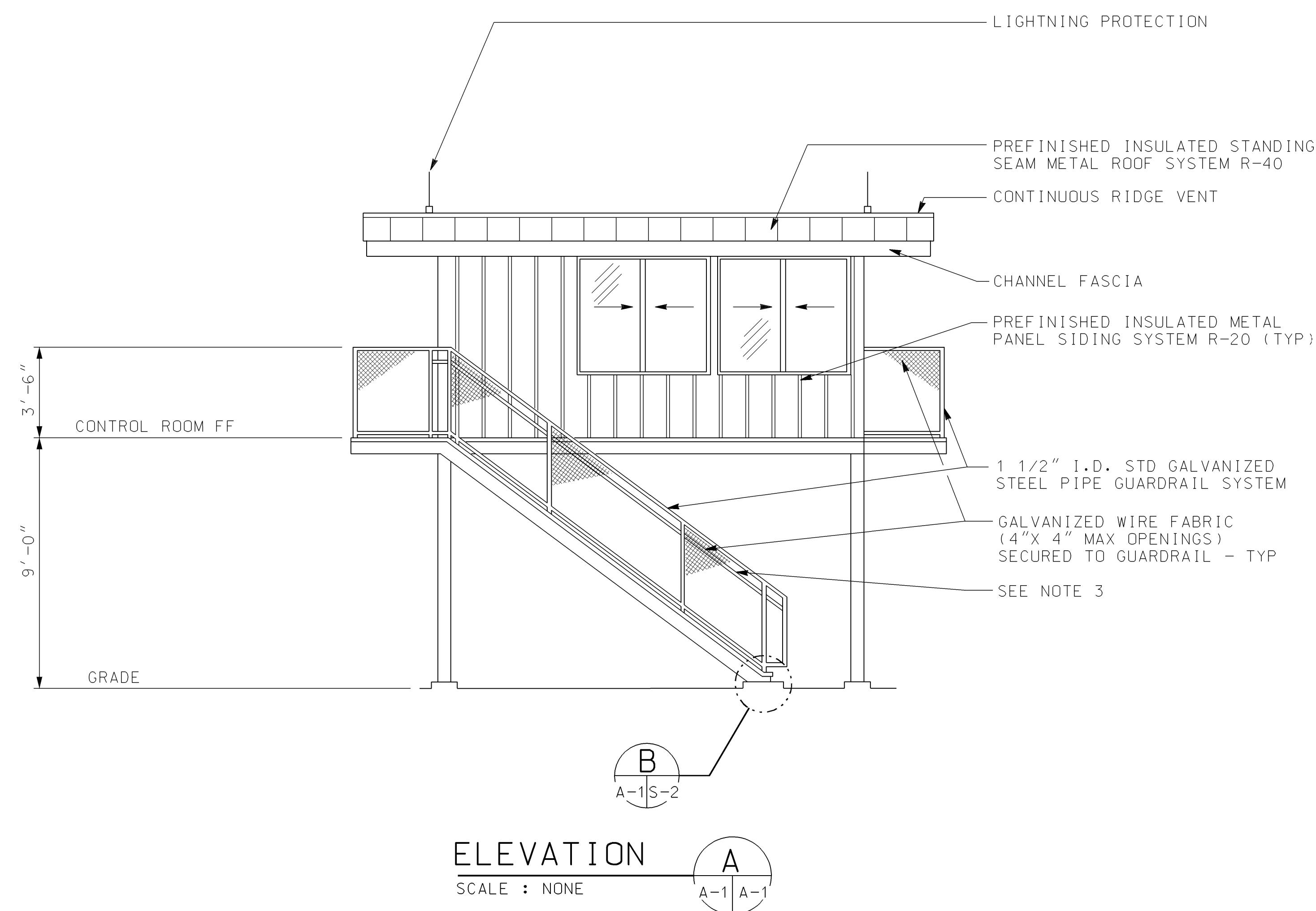


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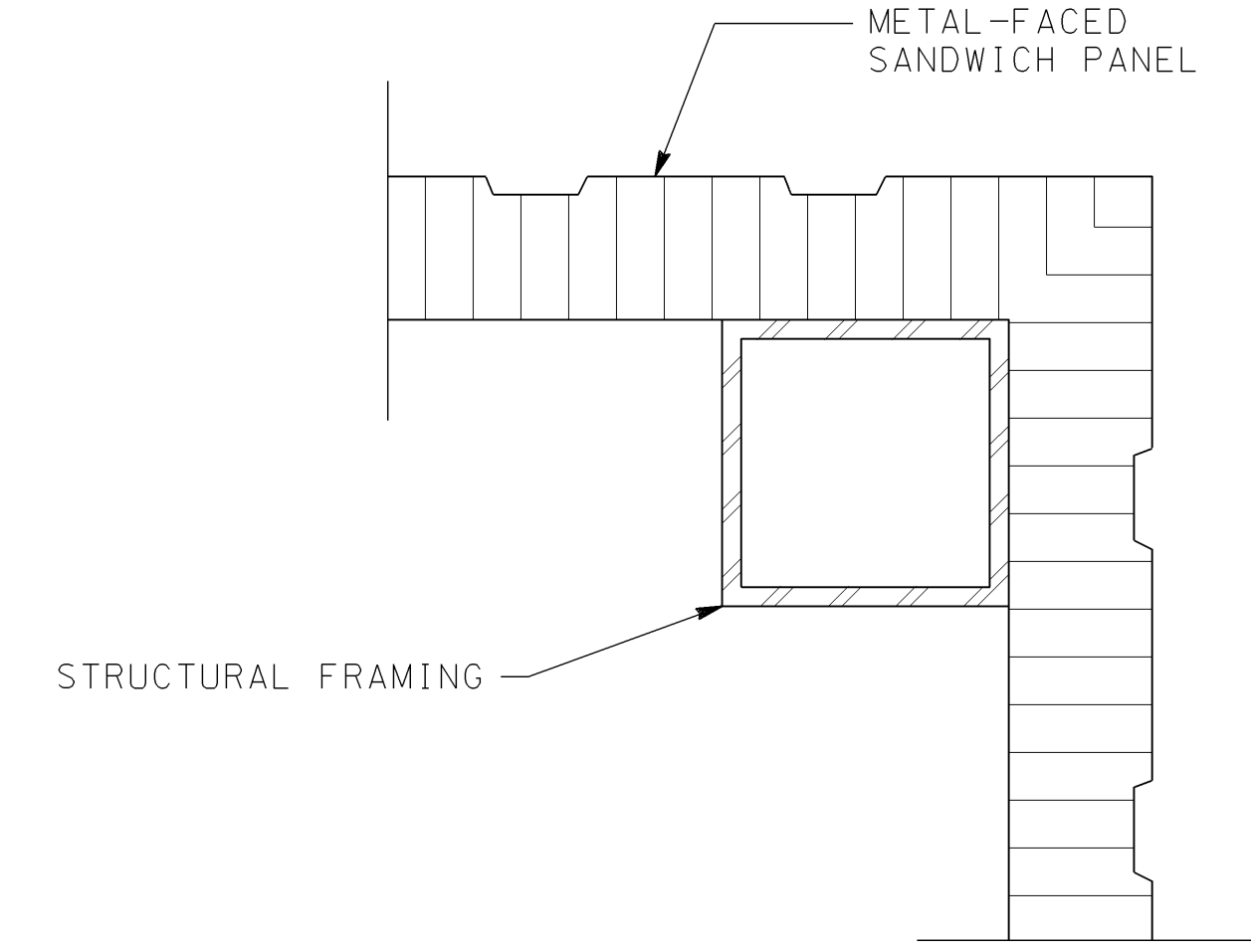
TOWER - CONTROL ROOM PLAN

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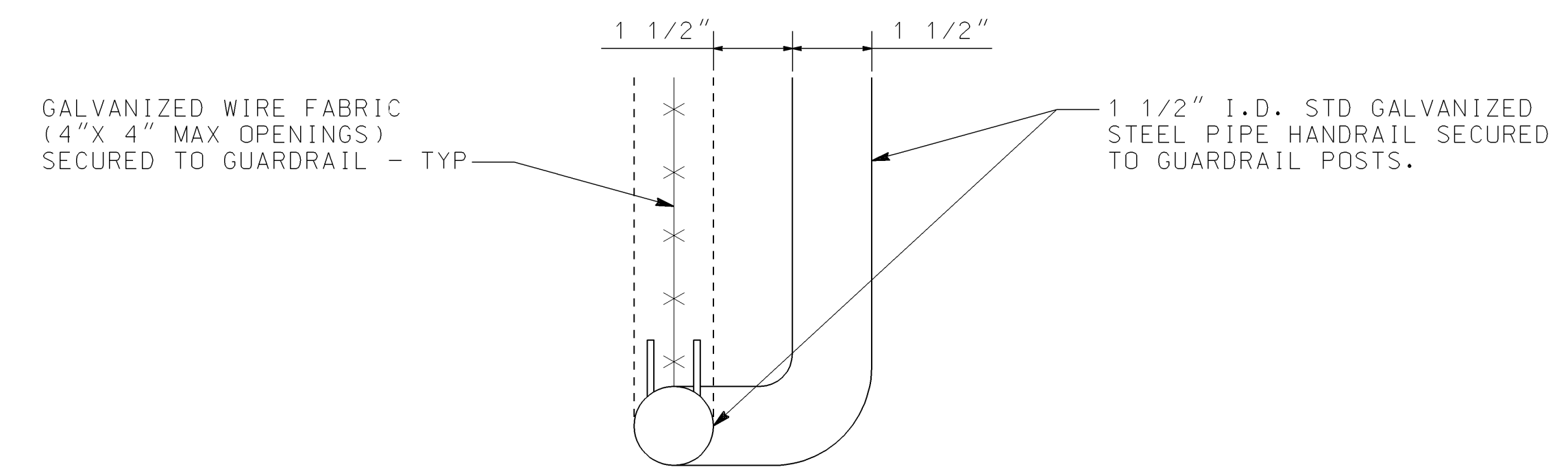
ELEVATION

SCALE : NONE



WALL PANEL AT CORNER COLUMN

SCALE : NONE

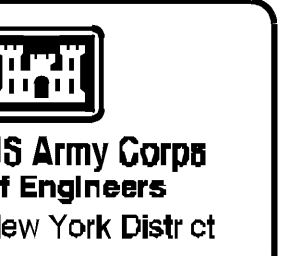


TYPICAL HANDRAIL RETURN DETAIL

SCALE : NONE

NOTES:

- Contractor will verify all dimensions and conditions at site prior to construction. This drawing has been site adapted from a drawing prepared by either the office of the engineer, Fort Drum, NY or by the Corps of Engineers, Huntsville Division.
- Building construction shall be in accordance with specification section 13120.
- 1 1/2" I.D. std galvanized steel pipe handrail at 3'-0" above tread nosing typ. each side of stairs. Extend 12" beyond top tread nosing and 11" beyond bottom tread nosing. Support handrail at each adjacent vertical guard post (5'-6" max post spacing). Return ends to vertical guard post (typ) (see typ handrail return detail).
- Building construction and foundation design shall be in accordance with section 13120.



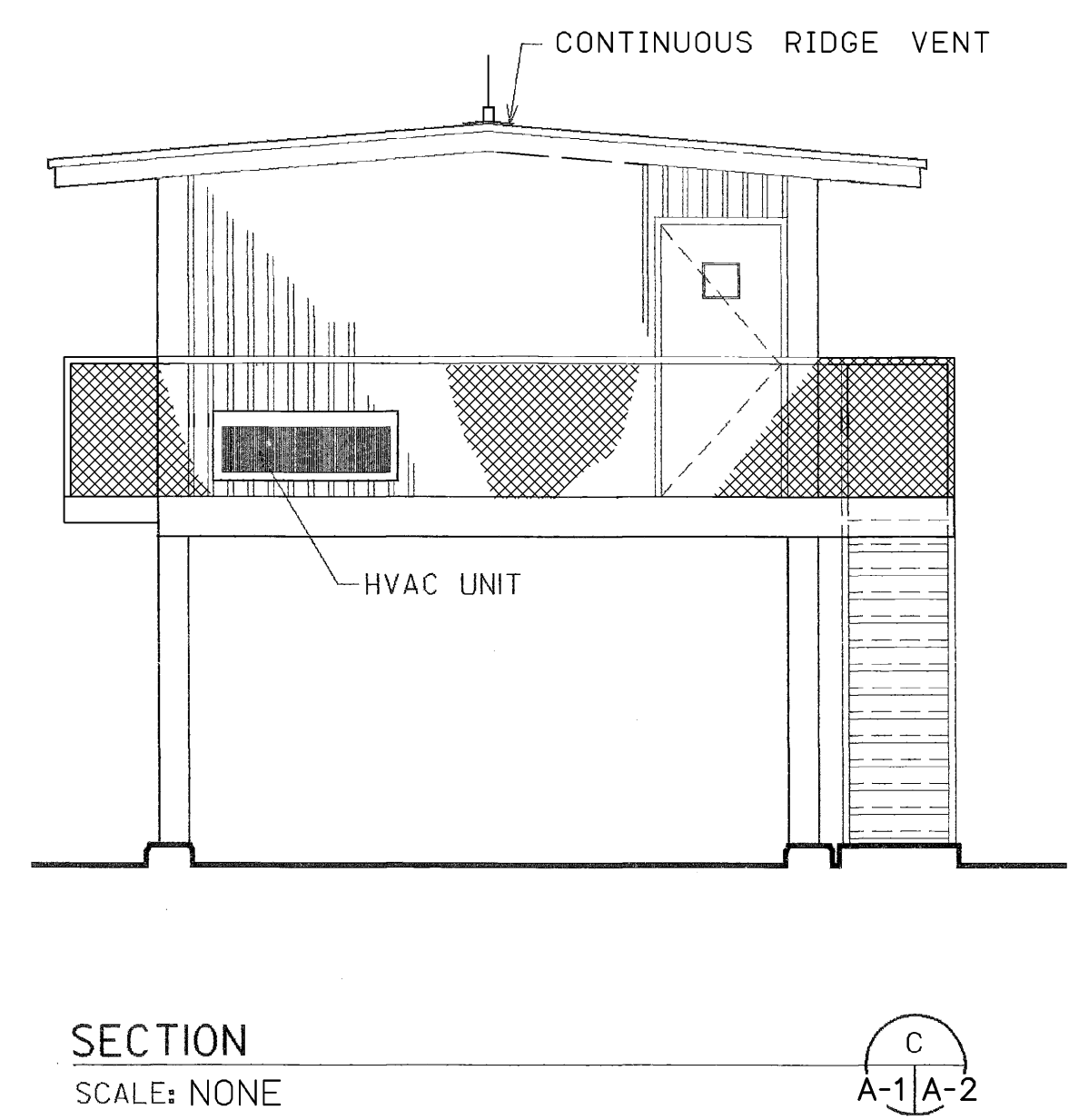
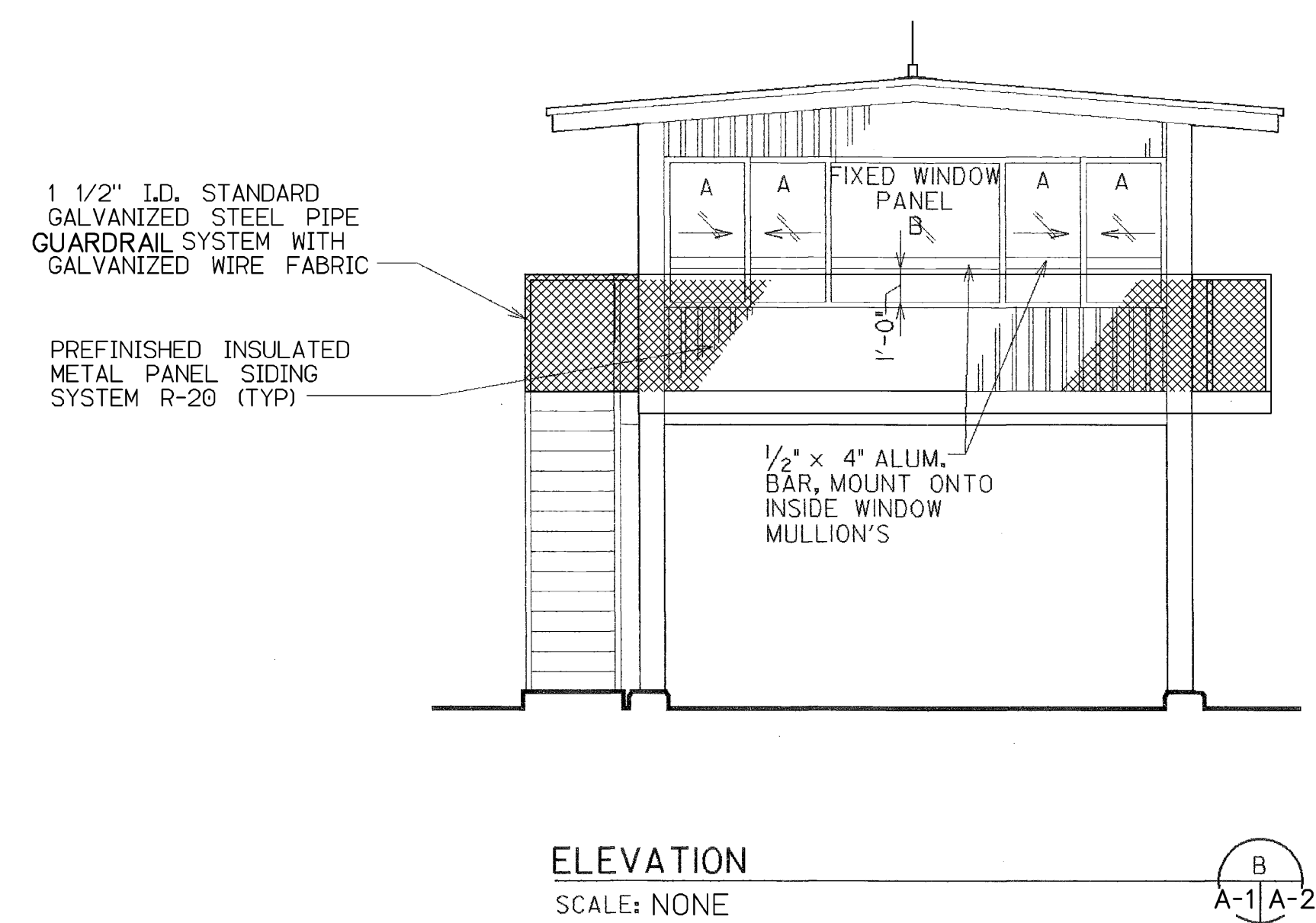
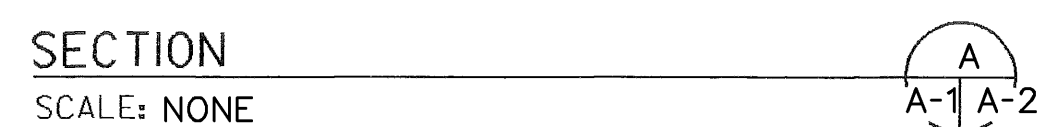
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Designed by: WEE	Drawn by: WEE	Checked by: WEE	Reviewed by: WEE	Submitted by: WEE	Rev date: JUL 2005	Rev date: JUL 2005	Rev date: JUL 2005	Rev date: JUL 2005	Rev date: JUL 2005
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DEFENSIVE LIVE FIRE RANGE
FORT DRUM NY
CONTROL TOWER
PLAN AND ELEVATION

Sheet
reference
number:

A-1



- NOTES:**
1. ELECTRICAL SERVICE ENTRANCE, COORDINATE WITH ELECTRICAL DWGS.
 2. STRUCTURAL SUPPORT TO BE DESIGNED BY CONTRACTOR.
 3. ALL STAIR LANDING AND PLATFORMS SHALL HAVE A TOEBOARD (OR KICKPLATE WHERE INDICATED ON DWGS.)
 4. THE COLOR OF SIDING AND ROOFING WILL BE SELECTED BY THE CONTRACTING OFFICER. CONTRACTOR TO SUBMIT COLORS AVAILABLE FOR SELECTION. DOOR AND WINDOW TRIM SHALL BE DARK BROWN. CONTROL TOWER SUPPORT STRUCTURE SHALL BE DARK BROWN.
 5. ALL EXPOSED STEEL SHALL BE PRIMED AND PAINTED.
 6. LOCATIONS OF FASTENERS FOR PANEL TO PANEL CONNECTIONS AND PANEL TO STRUCTURAL CONNECTIONS MUST BE SHOWN ON ERECTION DRAWINGS.
 7. PVC TUBE SHALL EXTEND 3'-0" ABOVE FINISHED FLOOR. PVC TUBE SHALL BE TERMINATED 4'-0" ABOVE FINISHED GRADE. EACH TUBE END SHALL BE CAPPED. CAPS SHALL BE ATTACHED BY CHAIN.
 8. BUILDING CONSTRUCTION AND FOUNDATION DESIGN SHALL BE IN ACCORDANCE WITH SECTION 13120.
 9. SEE SHEET A-3 FOR DOOR AND WINDOW DETAILS.

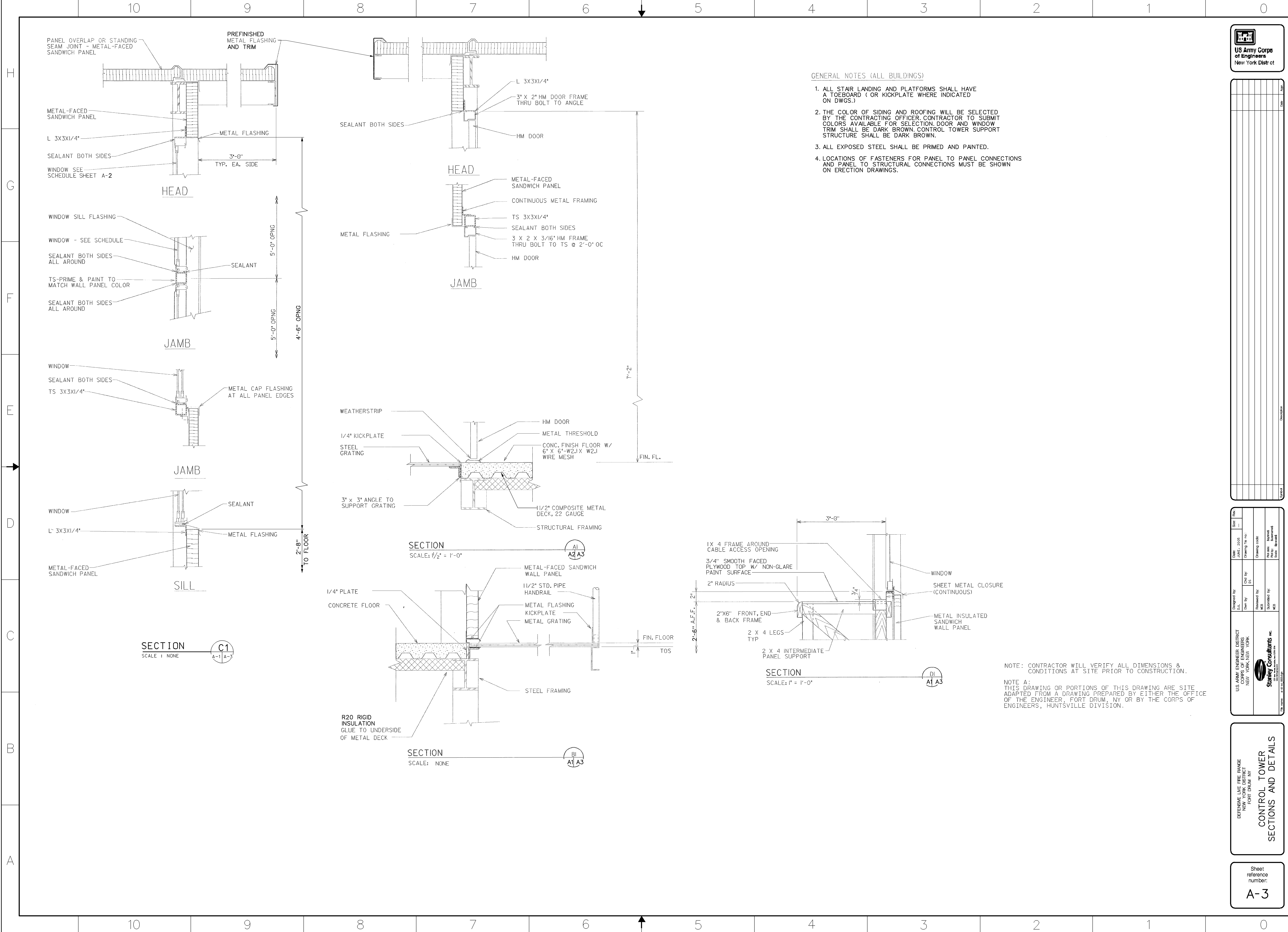
NOTE: CONTRACTOR WILL VERIFY ALL DIMENSIONS & CONDITIONS AT SITE PRIOR TO CONSTRUCTION.

NOTE A:
THIS DRAWING OR PORTIONS OF THIS DRAWING ARE SITE
ADAPTED FROM A DRAWING PREPARED BY EITHER THE OFFICE
OF THE ENGINEER, FORT DRUM, NY OR BY THE CORPS OF
ENGINEERS, HUNTSVILLE DIVISION.

DOOR AND WINDOW SCHEDULE				
ITEM	SIZE	MATERIAL	GLAZING	REMARKS
DOOR	3'-0"x7'-0"x1 3/4"	HOLLOW METAL	INSULATED GLASS	11/2 PR HINGES, CLOSER, LATCH SET & DEAD BOLT LOCK-WEATHERSTRIP
WINDOW TYPE A	6054 HORIZ SLIDER	ALUMINUM	INSULATED GLASS	1" INSULATION, BLUE GREEN TINT, INSECT SCREEN
WINDOW TYPE B	6054 FIXED	ALUMINUM	INSULATED GLASS	1" INSULATION, BLUE GREEN TINT

ROOM FINISH SCHEDULE				
AREA	FLOOR	WALLS	CEILING	REMARKS
CONTROL ROOM	CONC W/SEALER	MFR.STANDARD FINISH ON	MFR.STANDARD FINISH ON	PAIN STRUCT,STEEL TO MATCH PANELS

04-10232-07 DESIGN OF DEFENSE LIVES - CT-02-003, 003, 004, 005, 006, 007, 008, 009, 010, 011, 012, 013, 014, 015, 016, 017, 018, 019, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042, 043, 044, 045, 046, 047, 048, 049, 050, 051, 052, 053, 054, 055, 056, 057, 058, 059, 060, 061, 062, 063, 064, 065, 066, 067, 068, 069, 070, 071, 072, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084, 085, 086, 087, 088, 089, 090, 091, 092, 093, 094, 095, 096, 097, 098, 099, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 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993, 994, 995, 996, 997, 998, 999, 1000



US Army Corps of Engineers
New York District

Date	Drawn by	Checked by	Reviewed by	Submitted by	Noted by	Approved by
JUNE 2005

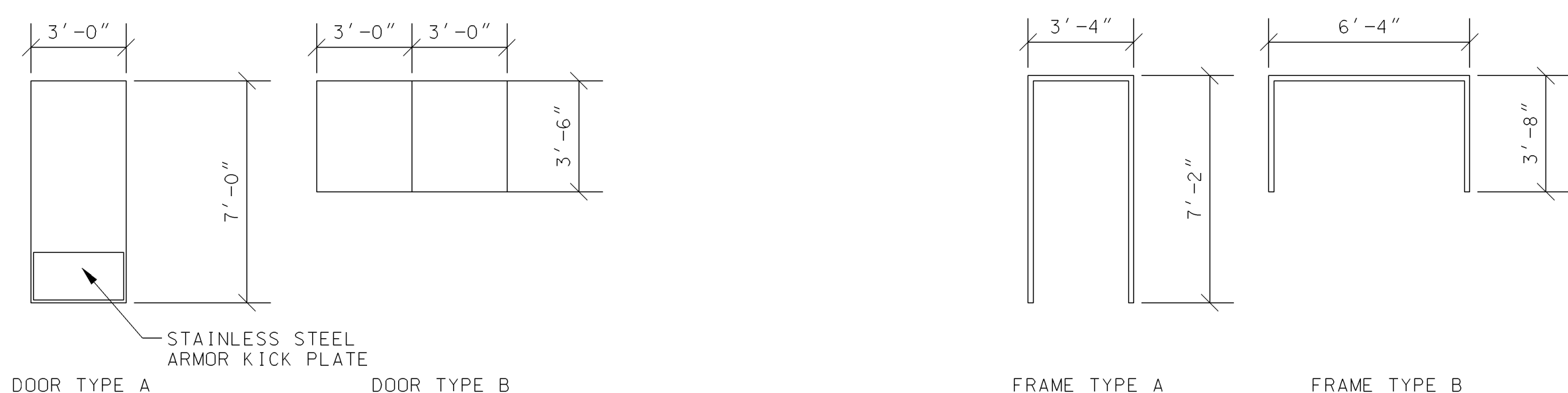
U.S. Army Engineer District
New York District
Fort Drum, NY

Stanley Consultants Inc.
1000 West 10th Street
Huntsville, AL 35893

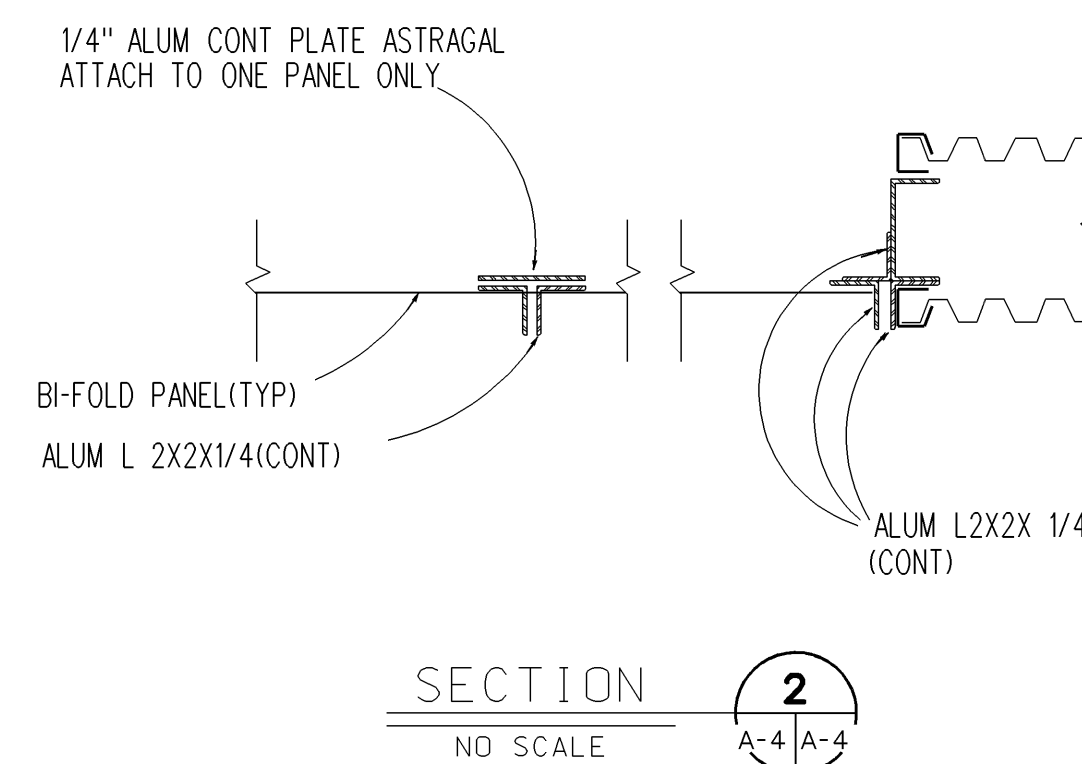
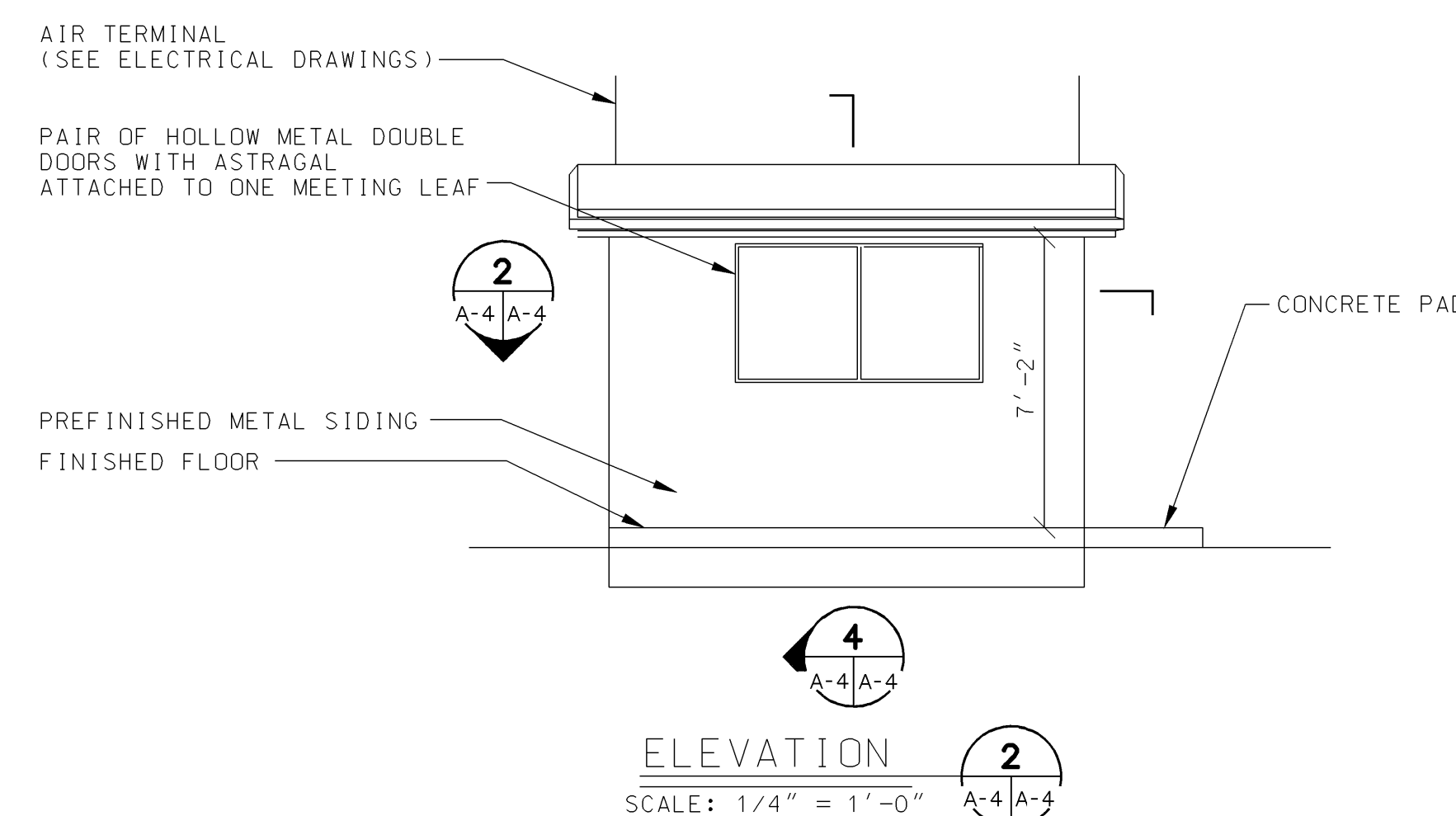
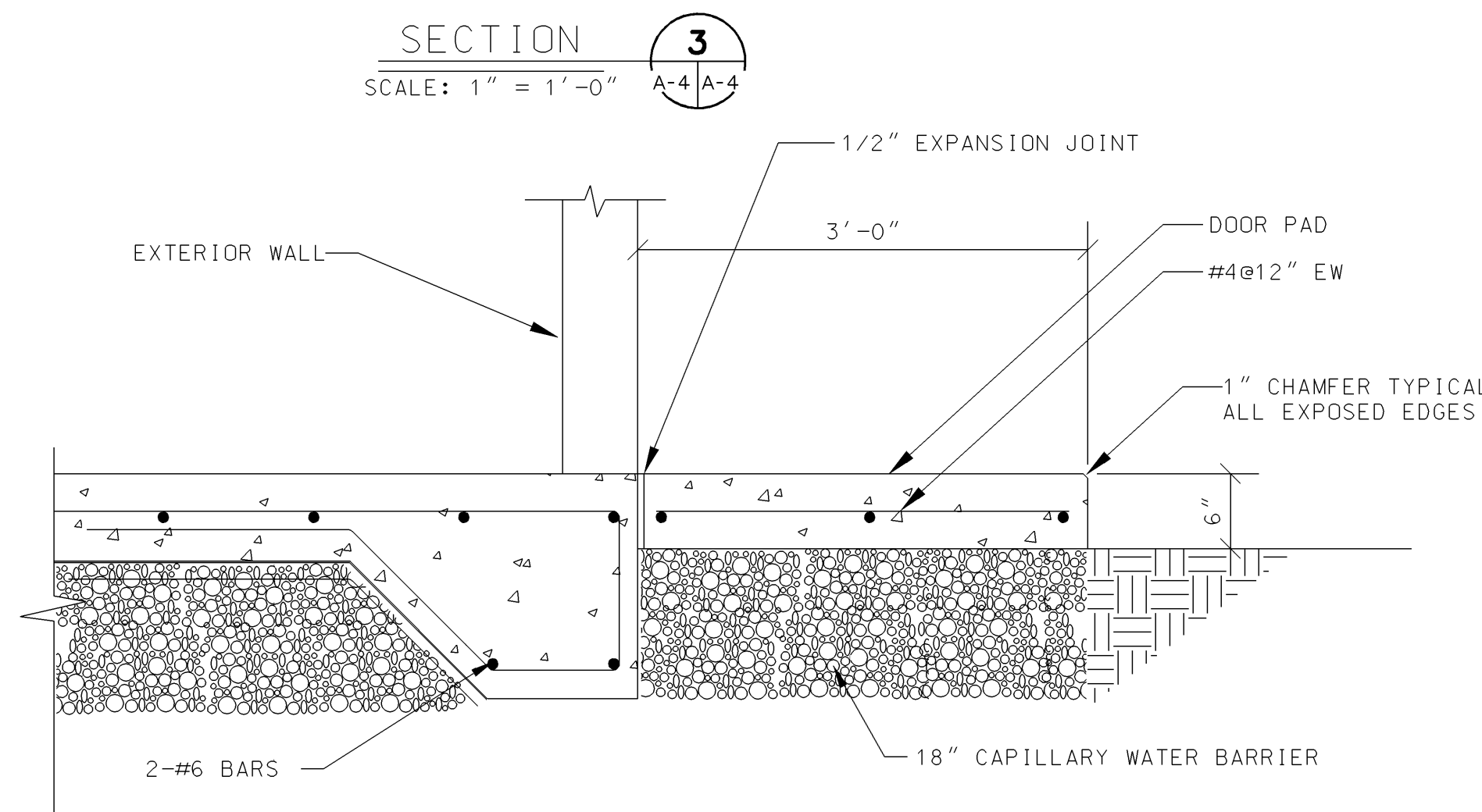
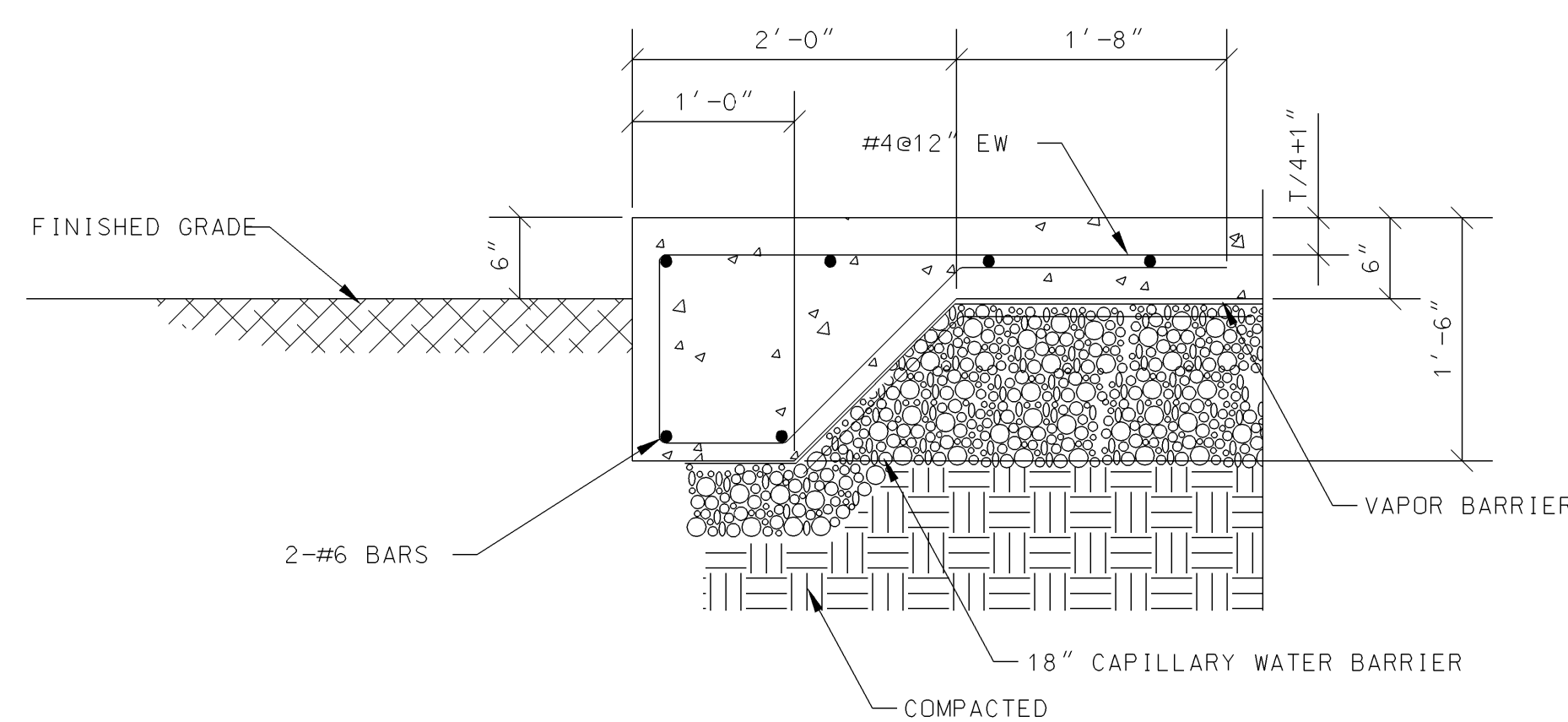
DEFENSE LIVE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM NY

CONTROL TOWER
SECTIONS AND DETAILS

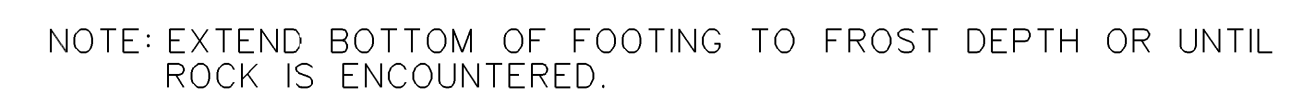
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A-3



ROOM FINISH SCHEDULE			
FLOOR	WALLS	CEILING	REMARKS
CONC. W/SEALER & HARDENER	MANUF. STD. LINER PANEL FINISH W/ BASE	MANUF. STD. CLG. PANEL FINISH	SEE GENERAL NOTES



- GENERAL NOTES:**
1. THE COLOR OF SIDING AND ROOFING WILL BE SELECTED BY THE CONTRACTING OFFICER. CONTRACTOR TO SUBMIT COLORS AVAILABLE FOR SELECTION.
 2. BUILDING NUMBERS SHALL BE FURNISHED ON ALL BUILDINGS. THE NUMBERS SHALL BE STENCILED IN HELVETICA TYPE ON TO A 6"x18" METAL SIGN FACE, ATTACHED TO THE BUILDING. FIVE DIGIT NUMBERS SHALL BE PROVIDED FOR EACH SIGN. BUILDING NUMBERS SHALL BE ASSIGNED BY THE GOVERNMENT. THE TOP OF SIGN SHALL BE MOUNTED 7'-0" ABOVE THE FINISHED BUILDING FLOOR, 4" FROM THE EDGE OF THE BUILDING.
 3. LIGHTNING PROTECTION TO BE PROVIDED BY THE CONTRACTOR.
 4. ROOFING AND SIDING SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 13120.
 5. SEE SHEET S-1 FOR DESIGN CRITERIA AND ADDITIONAL REQUIREMENTS.
 6. 1" CHAMFER ALL EXPOSED EDGES OF CONCRETE, UNO.
 7. BOLLARDS ARE NOT SHOWN FOR CLARITY.
 8. BUILDING CONSTRUCTION AND FOUNDATION DESIGN SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 13120.



NOTE: THE DOOR & WINDOW SCHEDULE AND FINISH SCHEDULE
ARE APPLICABLE TO THE BLDGS. ON THIS SHEET A-5, RANGE
MAINTENANCE SUPPORT FACILITY AND MULTIPURPOSE BUILDING

NOTE:

1. GYP BRD WALLS SHALL BE GALV STEEL STUDS @ 16" O.C. W/5/8" GYP BRD BOTH SIDES TO 4" ABOVE ADJACENT CEILINGS, UNO.
2. WIRE MESH PARTITIONS AND CEILINGS SHALL BE 10 G. METAL FABRIC WOVEN INTO 1/2" DIAMOND MESH SECURED TO STEEL FRAMING MEMBERS. ALL METAL HOT DIPPED GALV. AND PAINTED. LOCKS SHALL BE BRONZE, CYLINDER, MORTISE TYPE.
3. INTERIOR AND EXTERIOR PAINT MANUFACTURER'S STANDARD FINISH COLOR BY CONTRACTING OFFICER.

NOTE:

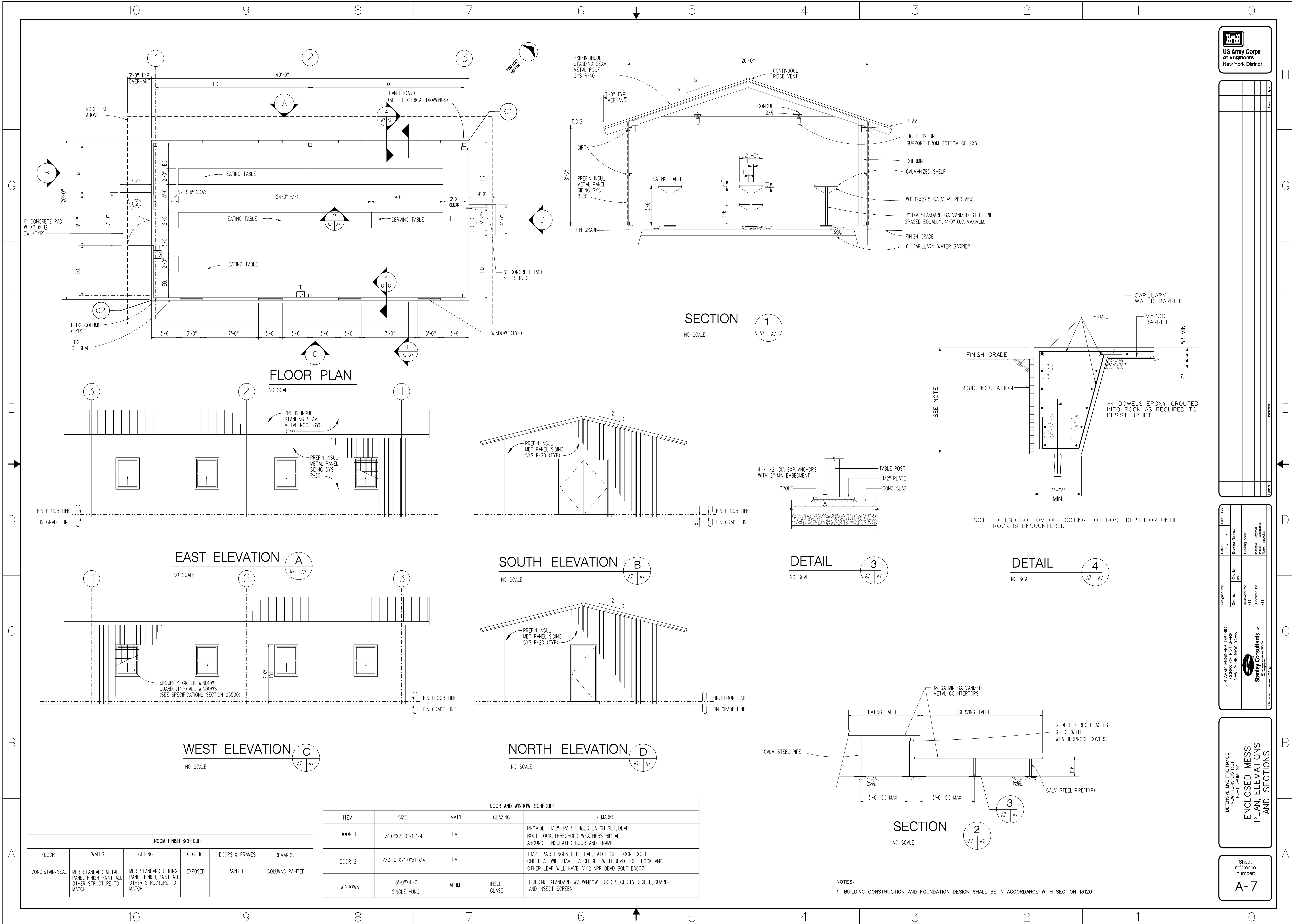
1. BUILDING CONSTRUCTION AND FOUNDATION DESIGN SHALL BE IN ACCORDANCE WITH SECTION 13120.
2. DOOR AND FRAME TYPES SHALL BE TYPE "A" AS INDICATED ON SHEET A-4.



-
- 4"
- GRAVEL
- #4 @ 12"
- FINISH GRADE
- #4 DOWELS EPOXY GROUTED INTO ROCK AS REQUIRED TO RESIST UPLIFT
- 1'-0"
- MIN



01-13222-07 DESIGN/REV: DWG/03-00-0000 SHEETS 01-13222-07 DATE: 21-JUL-2005

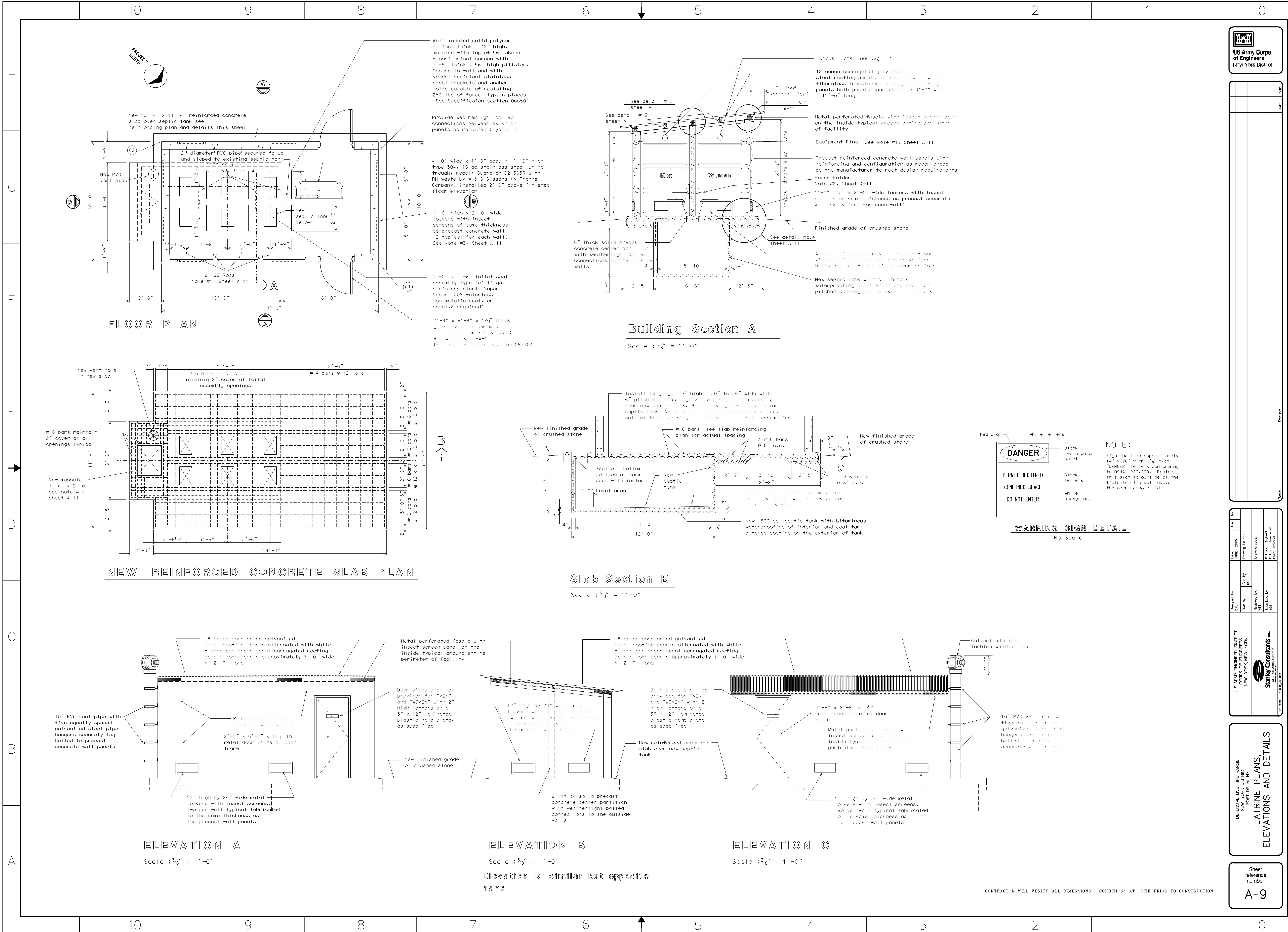


DOOR AND WINDOW SCHEDULE				
ITEM	SIZE	MAT'L	GLAZING	REMARKS
DOOR 1	3'-0"x7'-0"x1 3/4"	HM		PROVIDE 1 1/2" PAIR HINGES, LATCH SET, DEAD BOLT LOCK, THRESHOLD, WEATHERSTRIP, ALL AROUND - INSULATED DOOR AND FRAME
DOOR 2	2X3'-0"x7'-0"x1 3/4"	HM		1 1/2" PAIR HINGES PER LEAF, LATCH SET, LOCK EXCEPT ONE LEAF WILL HAVE LATCH SET WITH DEAD BOLT LOCK AND OTHER LEAF WILL HAVE A1112 NRP DEAD BOLT E06071
WINDOWS	3'-0"x4'-0" SINGLE HUNG	ALUM	INSUL GLASS	BUILDING STANDARD W/ WINDOW LOCK SECURITY GRILLE, GUARD AND INSECT SCREEN

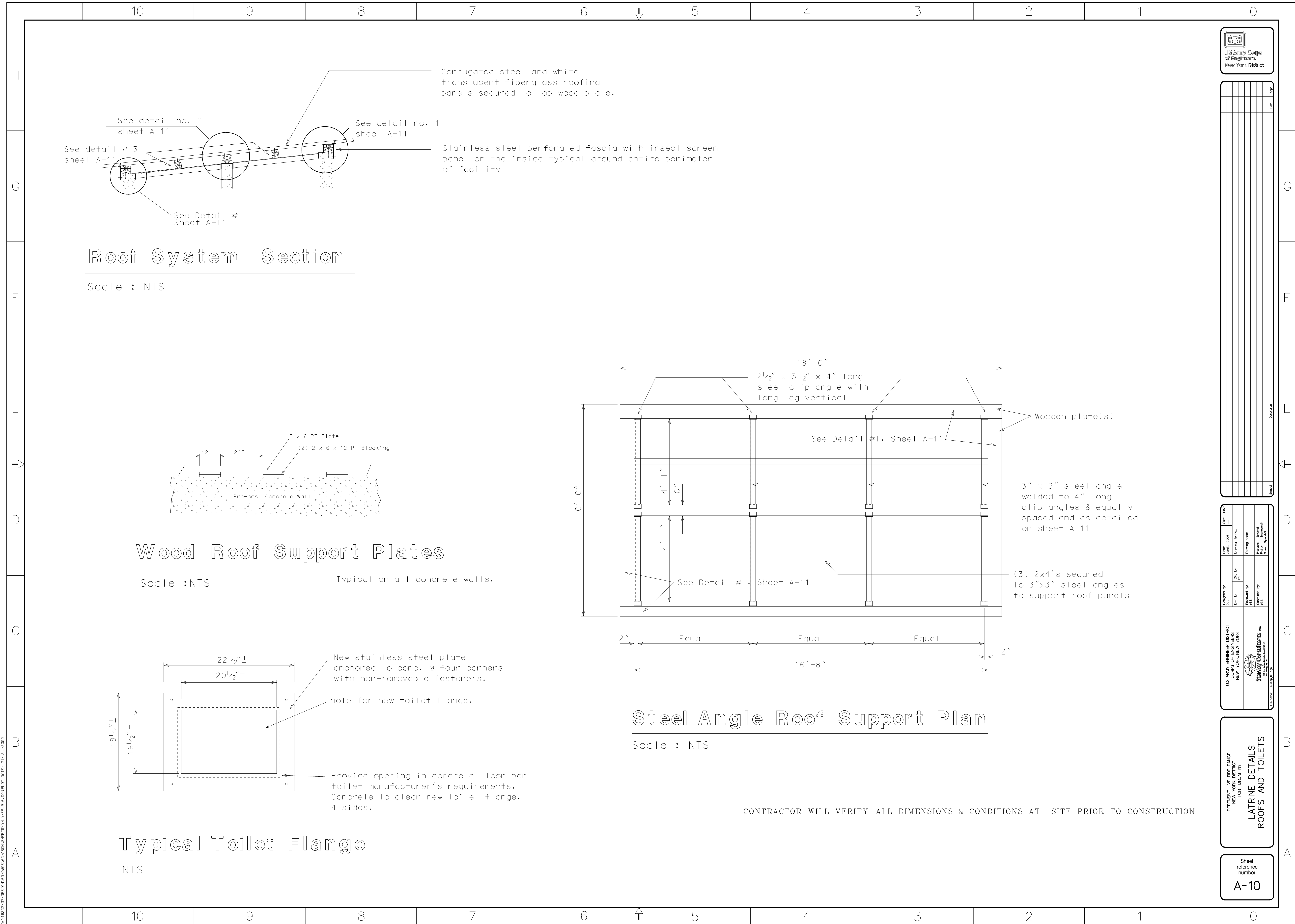
ROOM FINISH SCHEDULE					
FLOOR	WALLS	CEILING	CLG. HGT.	DOORS & FRAMES	REMARKS
CONC./STAIN/SEAL	MFR. STANDARD METAL PANEL FINISH, PAINT ALL OTHER STRUCTURE TO MATCH.	MFR. STANDARD CEILING PANEL FINISH, PAINT ALL OTHER STRUCTURE TO MATCH.	EXPOSED	PAINTED	COLUMNS PAINTED

NOTES:
1. BUILDING CONSTRUCTION AND FOUNDATION DESIGN SHALL BE IN ACCORDANCE WITH SECTION 13120.

01-13232-07 DESIGN/005-DWG/005-00-0000 SHEETS 1-10 11-12 13-14 15-16 17-18 19-20 21-22 JUL-2005



01-18222-07-DESIGN-08-0403-03-0403-SHEETS-A-10-1P-010-0000-01 DATE: 21-JUL-2005



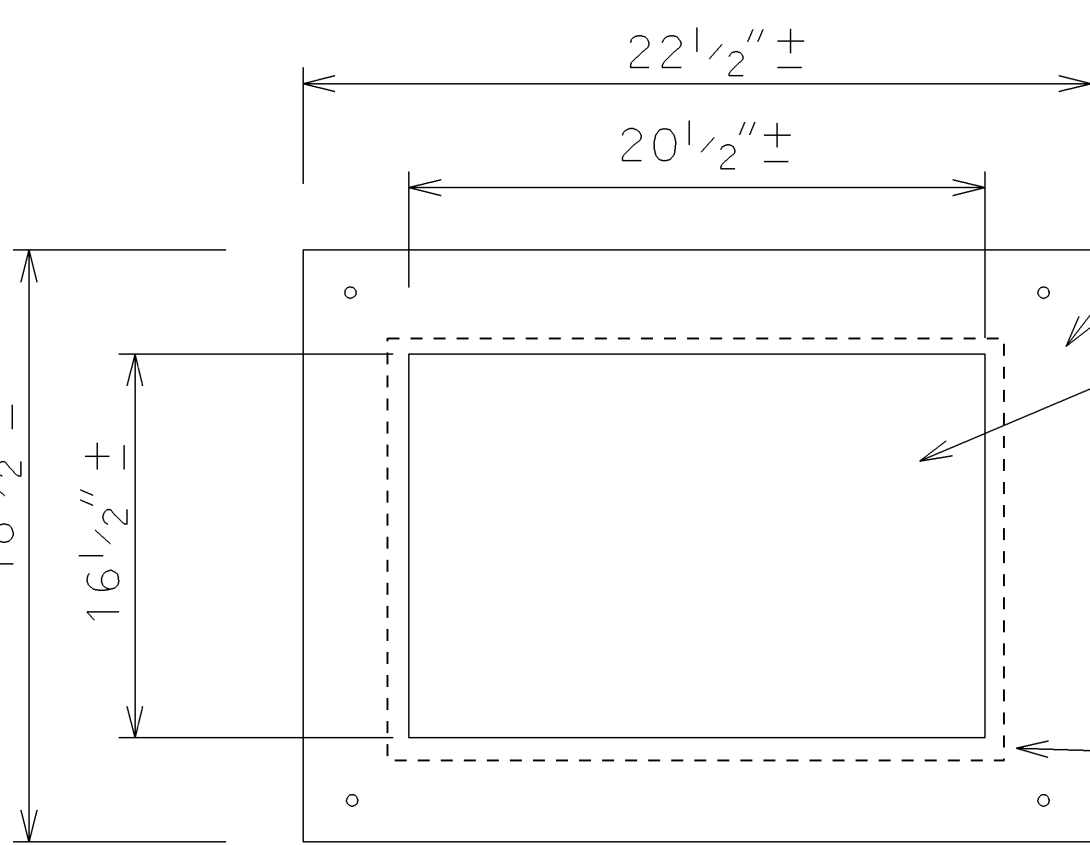
Roof System Section

Scale : NTS

Wood Roof Support Plates

Scale :NTS

Typical on all concrete walls.



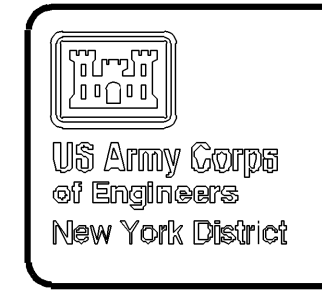
Typical Toilet Flange

NTS

Steel Angle Roof Support Plan

Scale : NTS

CONTRACTOR WILL VERIFY ALL DIMENSIONS & CONDITIONS AT SITE PRIOR TO CONSTRUCTION



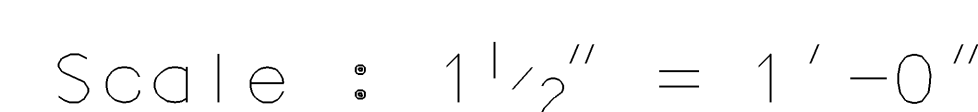
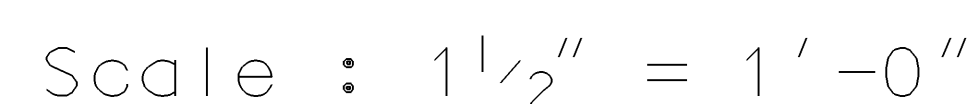
Rev	Desc	Date
1	Issue	21-JUL-2005

Designed by DUL	Drawn by JES	Checked by JES	Reviewed by WEB	Submitted by WEB	Approved by WEB	Size 11x17	Scale As Shown
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS NEW YORK DISTRICT NEW YORK, NEW YORK						Sheet reference number: A-10	

DEFENSIVE LIVE FIRE RANGE
FORT DRUM NY
LATRINE DETAILS
ROOFS AND TOILETS

Sheet
reference
number:
A-10

1. **Equipment Pins:**
The contractor shall provide and install eight 1/2" diameter by 6" long stainless steel rods. The contractor shall embed the rods a minimum of 2" deep and 6'-0" above finished floor and set in epoxy grout, 4 for each latrine.
2. **Paper Holder:**
The contractor shall provide and install four 1/2" diameter by 1'-6" long stainless steel rod. The contractor shall set the rods 1'-10 1/2" above the finished floor and through the center precast wall and grouted in place with the both ends ground smooth with 6" projecting into each latrine for use as toilet paper holders. After epoxy has set, the ends on both sides shall be bent slightly upward.
3. The contractor shall provide and install eight 1'-0" x 2'-0" ventilation louvers with insect screens attached (2 in each wall panel). The bottom of the louver opening shall be a minimum of 6" above the finished floor and centered between the precast panel ribs. The louvers shall be made of 18 gauge hot dipped galvanized steel, lag bolted to the wall from the inside of the latrine through the 1/8" thick by 2" wide, galvanized, steel frame. A protective, galvanized, expanded metal screen shall be provided on the interior surface.
4. The contractor shall provide and install a 1'-6" by 2'-0" rectangular cast iron manhole outside of the latrines in the reinforced concrete floor slab as indicated on the drawings. The manhole lid shall be hinged to the frame and shall rest against the latrine wall when open along with a locking device to secure it in the open position. The lid and frame shall be fitted with hasps to permit locking shut with a padlock.
5. Contractor will verify all dimensions & conditions at site prior to construction.



2 1/2" x 3 1/2" x 4" long steel clip angle with long leg vertical

Continuous 2x4 wood blocking secured to steel angles

3" x 3" steel angle welded to 4" long clip angles & equally spaced as shown on plans

6"

1 1/2"

3 1/8"

1 1/2"

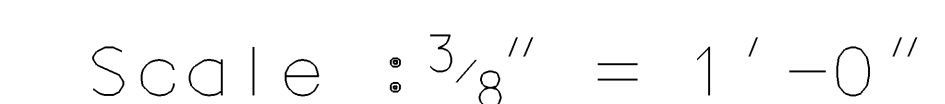
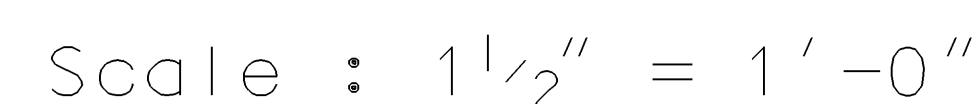
4'-0"

1 1/2"

Precast concrete wall

Precast concrete wall

Scale : $1\frac{1}{2}'' = 1' - 0''$



CONTRACTOR WILL VERIFY ALL DIMENSIONS & CONDITIONS AT SITE PRIOR TO CONSTRUCTION

REINFORCING STEEL NOTES:

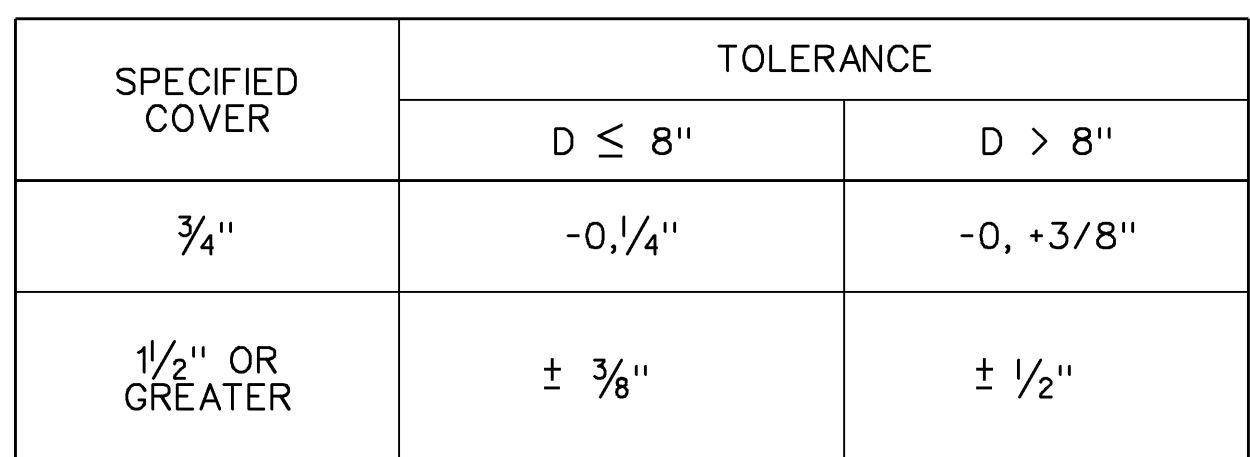
1. CONFORM WITH ACI 318, ACI STANDARD FOR "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT, AND CRSI "REINFORCING BAR DETAILING", 4TH EDITION."
2. REINFORCING SHALL BE CONTINUOUS AROUND ALL CORNERS UNLESS SHOWN OTHERWISE.
3. SHIFT REINFORCING BARS TO CLEAR ANCHOR BOLTS AND EMBEDDED ITEMS; OBTAIN CONTRACTING OFFICER'S REPRESENTATIVE APPROVAL AND ADD EXTRA REINFORCING BAR IF REQUESTED BY CONTRACTING OFFICER'S REPRESENTATIVE. CUTTING OF REINFORCING BARS NOT PERMITTED.
4. REINFORCING SHALL BE CONTINUOUS THROUGH CONSTRUCTION JOINTS UNLESS SHOWN OTHERWISE.
5. TERMINATE ALL REINFORCING STEEL AT EXPANSION JOINTS UNLESS SHOWN OTHERWISE.
6. TACK WELDING TO REINFORCING BARS IS NOT PERMITTED.
7. MINIMUM BAR SPLICE LAP LENGTH SHALL BE AS SHOWN, WHERE LAP LENGTH IS NOT SHOWN ON DRAWINGS, USE MINIMUM LENGTH SHOWN IN THE FOLLOWING TABLE.

A. CLASS B SPLICE FOR $f_y = 60$ KSI, $f'_c = 4,000$ PSI, NORMAL WEIGHT CONCRETE, UNCOATED BARS AND FOLLOWING:

- 1) CLEAR SPACING OF BARS ≥ 2 BAR DIA AND COVER \geq BAR DIA, OR
- 2) CLEAR SPACING OF BARS \geq DIA BAR AND COVER \geq DIA BAR, AND STIRRUPS OR TIES THROUGHOUT LAP NOT LESS THAN ACI CODE MINIMUM.

B. TOP BARS ARE DEFINED AS HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

8. REINFORCING BAR SPLICES PERMITTED ONLY WHERE SHOWN OR APPROVED BY CONTRACTING OFFICER'S REPRESENTATIVE.
9. FOR SLAB REINFORCING BARS, PLACE BARS SPANNING IN THE SHORT DIRECTION WITH MINIMUM CONCRETE COVER SPECIFIED UNLESS SHOWN OTHERWISE.
10. EXTRA REINFORCING SHALL BE IN ADDITION TO REINFORCING SHOWN OR NOTED.
11. ALL BARS INDICATED AS BEING BENT SHALL HAVE STANDARD 90 DEGREE HOOKS UNLESS SHOWN OTHERWISE. 180 DEGREE HOOKS ARE AN ACCEPTABLE ALTERNATE WHERE APPROVED BY CONTRACTING OFFICER.
12. PROVIDE REINFORCING BAR DOWELS IN FOOTINGS OF THE SAME NUMBER, SPACING AND SIZE AS COLUMN, PIER, OR WALL REINFORCING UNLESS SHOWN OTHERWISE.
13. ALL BARS SHALL BE SECURELY PLACED IN FINAL POSITION PRIOR TO PLACING CONCRETE. PLACING BARS INTO WET CONCRETE IS PROHIBITED.
14. REINFORCING CONCRETE COVER UNLESS OTHERWISE SHOWN: 1½" WITH FOLLOWING EXCEPTIONS: 2" FOR #6 BARS AND LARGER FOR CONCRETE EXPOSED TO EARTH OR WEATHER; 3" WHEN DEPOSITED AGAINST EARTH; ¾" FOR WALLS AND SLABS NOT EXPOSED TO EARTH OR WEATHER.
15. CONCRETE REINFORCEMENT SHALL BE PLACED WITHIN FOLLOWING TOLERANCE RELATIVE TO FORMED OR UNFORMED CONCRETE SURFACE:



NOTE:
TOLERANCES APPLY ONLY AT LOCAL ANOMALIES.
SIZE CHAIRS AND SPACERS FOR SPECIFIED COVER.

- STRUCTURAL STEEL NOTES:

1. DIMENSIONS: TO CENTERLINES OF COLUMNS, BEAMS AND PIPES; BACKS OF CHANNELS AND ANGLES; TOP SURFACES OF BEAMS AND TUBES UNLESS SHOWN OTHERWISE.
2. ELEVATIONS: REFER TO TOP SURFACE OF FLANGE OF MEMBER (AND CENTERLINE OF PIPES) UNLESS SHOWN OTHERWISE.
3. FRAMING MEMBERS NOTED BY DEPTH AND WEIGHT SHALL CONFORM TO THE AISC SPECIFICATION. FRAMING MEMBERS NOTED BY DEPTH ONLY ARE FULLY SIZED ON ANOTHER PLAN OR ELEVATION.
4. WELD SYMBOLS SHOWN MAY NOT DISTINGUISH BETWEEN FIELD AND SHOP WELDING. CONTRACTOR SHALL PROVIDE AS MUCH WELDING AS PRACTICAL IN THE SHOP. CONTRACTOR'S SHOP DRAWINGS SHALL SHOW ALL WELDING AND DISTINGUISH BETWEEN FIELD AND SHOP WELDING.
5. WHERE FILLET WELD SIZES ARE NOT NOTED ON DRAWINGS, PROVIDE MINIMUM SIZE IN ACCORDANCE WITH AWS D1.1, 5.14. ALL OTHER TYPE WELDS NOT SIZED ON DRAWINGS SHALL DEVELOP FULL STRENGTH OF MEMBERS ATTACHED.
6. SET ELEVATION OF BASEPLATES TO TOP OF BASEPLATE AND ANCHOR BOLTS TO TOP OF BOLT. DO NOT WORK FROM TOP OF CONCRETE.
7. MISCELLANEOUS ANCHOR BOLTS, EXPANSION ANCHORS, ANCHOR RODS, AND FASTENERS NOT INDICATED, BUT REQUIRED FOR ANCHORAGE OF EQUIPMENT AND MATERIALS, SHALL BE PROVIDED (AS RECOMMENDED BY MANUFACTURER OF ITEMS). ANCHORAGE WILL BE SUBJECT TO REVIEW BY CONTRACTING OFFICER.
8. ANCHOR BOLTS WHICH ARE NOT DETAILED ON DRAWINGS, BUT ARE FURNISHED UNDER THIS CONTRACT, SHALL HAVE SUFFICIENT EXTENSION FOR TWO HEAVY HEX NUTS.



Diagram illustrating the assembly of a flag pole base into a concrete foundation. The diagram shows a cross-section of the foundation and the pole assembly.

Labels:

- SEALANT PER FLAG POLE MANUFACTURER REQUIREMENTS
- FLAG POLE (SEE NOTES)
- SAND
- GROUND SLEEVE, BASE PLATE AND SUPPORT ASSEMBLY BY POLE MFR

Dimensions:

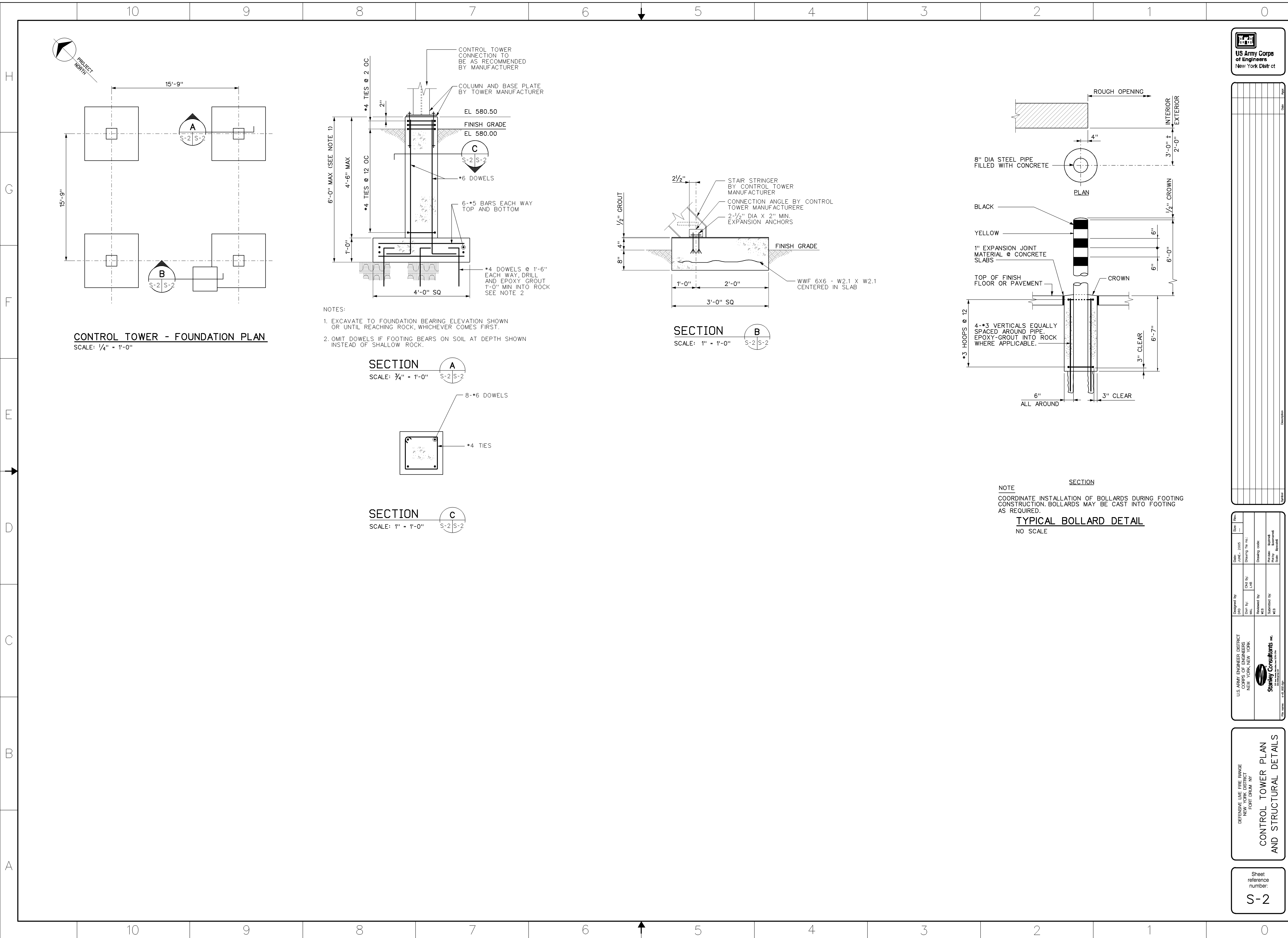
- Foundation Depth: 3'-6" (±)
- Inner Diameter: 2'-0" DIA (±)
- Outer Diameter: 2'-6" DIA (±)

NOTES:

1. PROVIDE FLAGPOLE ASSEMBLY AND ACCESSORIES AS NEEDED FOR COMPLETE AND PROPER INSTALLATION AND OPERATION.
2. DESIGN CRITERIA: FLAGPOLE AND INSTALLATION METHOD DESIGNED FOR 25' EXPOSED POLE HEIGHT, 100 MPH WIND VELOCITY IN ACCORDANCE WITH ASCE 7-02, WHEN FLYING A FLAG MEASURING 5'x8'.
3. FABRICATE POLE FROM SEAMLESS EXTRUDED TUBING COMPLYING WITH ASTM B 241, ALLOY 6063 T6 HAVING A MINIMUM TENSILE STRENGTH NOT LESS THAN 30 KSI AND A YIELD POINT OF 25 KSI. HEAT AGE AND HARDEN AFTER FABRICATION. PROVIDE CLEAR ANODIZED FINISH.
4. PROVIDE EXTERNAL HALYARD SYSTEM CONSISTING OF 14 GA SPUN ALUMINUM BALL, CAST ALUMINUM REVOLVING SINGLE SHEAVE TRUCK WITH STAINLESS STEEL BALL BEARINGS, 3/16" WATERPROOF POLYPROPYLENE HALYARD, NICKEL PLATED FLAGSNAPS, AND 9" CAST ALUMINUM CLEAT ASSEMBLY.
5. PROVIDE SPUN ALUMINUM FLASH COLLAR AND GROUND SLEEVE ASSEMBLY.
6. PROVIDE GROUND MOUNTED INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS SIMILAR TO DETAIL SHOWN. PAINT PORTIONS OF FLAGPOLE BELOW GRADE OR EMBEDDED IN CONCRETE WITH A HEAVY COAT OF BITUMINOUS PAINT.
7. DIMENSIONS MARKED (±) MAY BE VARIED TO SUIT MFR REQUIREMENTS.



01-18222-07-DESIGN-06-0403-02-STRUCT-SHEETS-DT-002.DGN PLOT DATE: 21-JUL-2005



Rev	Date	Description
1	21-JUL-2005	Issue for construction

Designed by JAL	Drawn by LUB	Checked by JAL	Scale AS SHOWN
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS NEW YORK DISTRICT	Submitted by JAL	Reviewed by JAL	Noted by JAL

DEFENSIVE LIVE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM NY

**CONTROL TOWER PLAN
AND STRUCTURAL DETAILS**

Sheet
reference
number:
S-2

ONE-LINE DIAGRAMS

ELECTRICAL PLANS

ELECTRICAL MOTOR AND CONTROL SCHEMATICS

	NEW PRIMARY CIRCUIT
	NEW CONTROL CIRCUIT
	EXISTING, PRIMARY OR SECONDARY
	NEW EQUIPMENT ENCLOSURE
	EXISTING EQUIPMENT ENCLOSURE
	NEW LOGIC INTERLOCK
	KEY INTERLOCK
	TRANSFORMER, 480V INDICATES PRIMARY VOLTAGE, 120V INDICATES SECONDARY VOLTAGE, 10KVA REPRESENTS POWER RATING AND 1* INDICATES SINGLE PHASE (THREE PHASE IF NOT INDICATED)
	POTENTIAL TRANSFORMER WITH FUSES (NUMBER INDICATES QUANTITY, NOT SHOWN IF ONE) 480/120V INDICATES PRIMARY/ SECONDARY VOLTAGES
	CURRENT TRANSFORMER (NUMBER INDICATES QUANTITY, NOT SHOWN IF ONE) 200/5 INDICATES PRIMARY/ SECONDARY CURRENT RATIO
	BUSHING TYPE CURRENT TRANSFORMER
	GROUND FAULT SENSOR CURRENT TRANSFORMER
	CIRCUIT BREAKER (* INDICATES BREAKER NUMBER) 1600AF INDICATES FRAME SIZE AND 1200AT INDICATES TRIP SETTING
	ISOLATING SWITCH NON-FUSED (* INDICATES SWITCH NO.)
	ISOLATING SWITCH FUSED (* INDICATES SWITCH NO.)
	DRAWOUT AIR CIRCUIT BREAKER
	DRAWOUT TYPE CIRCUIT BREAKER
	DRAWOUT POWER CIRCUIT BREAKER
	POWER CIRCUIT BREAKER
	COMBINATION MOTOR STARTER COMBINATION CONTACTOR NUMBER INDICATES SIZE TYPE: * * N - NON-REVERSING R - REVERSING 2S - TWO SPEED C - CONTACTOR
	COMBINATION MAGNETIC STARTER W/CONTROL POWER TRANSFORMER SIZED FOR LOAD NUMBER INDICATES SIZE TYPE: * * N - NON-REVERSING R - REVERSING 2S - TWO SPEED C - CONTACTOR
	LOAD BREAK OR NON-LOAD BREAK ELBOWS
	10 MCOV SURGE ARRESTOR

	FUSE
	THERMAL OVERLOAD
	FIXED CAPACITOR
	BATTERIES
	SPARKGAP
	SURGE ARRESTOR
	ADJUSTABLE SPEED DRIVE
	TRANSFORMER-WYE CONNECTED (UNGROUND)
	TRANSFORMER-WYE CONNECTED (GROUND)
	TRANSFORMER-DELTA CONNECTED
	FACTORY ASSEMBLED MACHINE OR PIECE OF EQUIPMENT (NO. INDICATES ESTIMATED HP)
	MOTOR HP AS INDICATED ON ONE LINE DIAGRAM OR SCHEDULES
	INDICATING LIGHTS
	METER: * * A- AMMETER F- FREQUENCY METER KW- KILOWATT METER KWH- KILOWATT HOUR METER KWHd- KILOWATT HOUR METER WITH DEMAND REGISTER PF- POWER FACTOR METER RT- RUNNING TIME METER S- SYNCROSCOPE V- VOLTMETER
	TRANSDUCER: * * A- CURRENT KW- KILOWATT PF- POWER FACTOR V- VOLTAGE SC- SIGNAL CONVERTER
	PROTECTIVE RELAY, REGULATING OR MONITORING DEVICE: * * 25- SYNC CHECK RELAY 25A- AUTOMATIC SYNCRONIZER 27- UNDERVOLTAGE RELAY 30- ANNUNCIATOR 32- REVERSE POWER RELAY 50/51-TIME OVERCURRENT RELAY WITH INSTANTANEOUS 50/51IN-GROUND TIME OVERCURRENT RELAY WITH INSTANTANEOUS 59/81-UNDER FREQUENCY/OVER VOLTAGE RELAY (UFOV) 65- GOVERNOR 83- AUTOMATIC TRANSFER RELAY 90- VOLTAGE REGULATOR 95- VAR/POWER FACTOR CONTROLLER 96- IMPORT/EXPORT CONTROLLER
	SWITCH: * * AS- AMMETER SELECTOR CS- CIRCUIT BREAKER CONTROL FS- FUEL SELECTOR GS- GOVERNOR RAISE-LOWER HS- SELECTOR SWITCH - FOR TYPE SEE CONTROL SCHEMATIC PB- PUSHBUTTON - FOR TYPE SEE CONTROL SCHEMATIC SS- SYNCRONIZING VS- VOLTMETER SELECTOR LS- LIMIT SWITCH

BUILDING POWER PLANS

	CONDUIT, EXPOSED
	CONDUIT, EMBEDDED OR UNDERGROUND
	CONDUIT TURNING DOWN
	CONDUIT TURNING UP
	GROUND CABLE
	GROUNDING ROD 20X3000
	LIGHTNING PROTECTION AIR TERMINAL
	GROUND
	NEUTRAL
	PHASE CONDUCTORS
	HOME RUN TO PANEL
	JUNCTION BOX
	MOTOR
	LIGHTING PANEL
	POWER PANEL
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	STARTER
	COMBINATION MOTOR STARTER
	TRANSFORMER
	CONTROLLER
	CLOCK
	PHOTO-ELECTRIC CELL
	PUSHBUTTON
	ELECTRIC DOOR OPENER
	RECEPTACLES * - DUPLEX 1 - SINGLE 3 - TRIPLEX 4 - QUADPLEX S - SWITCH & OUTLET WP - WATERPROOF XP - EXPLOSIONPROOF GFI - GROUND FAULT INTERRUPTING
	RANGE OUTLET
	FLOOR OUTLET
	208V OR 220V OUTLET
	460V OUTLET
	SURFACE MOUNTED RACEWAY

SITE ELECTRICAL PLANS

	PRIMARY UNDERGROUND DISTRIBUTION
	SITE LIGHTING UNDERGROUND
	NEW OVERHEAD DISTRIBUTION
	EXISTING OVERHEAD DISTRIBUTION
	SITE COMMUNICATION
	PAD-MOUNTED TRANSFORMER
	PULLBOX
	ELEVATED RUNWAY OR TAXIWAY LIGHT
	RECESSED RUNWAY OR TAXIWAY LIGHT
	FLOODLIGHT
	DUCTBANK TYPE DESIGNATION
	DISTANCE MARKER SIGN
	O.H.
	E.P.
	E.S.

BUILDING LIGHTING PLANS

	FLUORESCENT FIXTURE
	FLUORESCENT FIXTURE / EMERGENCY
	HID/INCANDESCENT FIXTURE
	HID/INCANDESCENT FIXTURE / WALL MOUNTED
	EXIT LIGHT CEILING MOUNTED
	EXIT LIGHT WALL MOUNTED
	EMERGENCY LIGHT BATTERY OPERATED
	HIGH PRESSURE SODIUM LIGHT - WALL MOUNTED
	SWITCH 3 - THREE WAY 4 - FOUR WAY WP - WEATHERPROOF XP - EXPLOSION PROOF

COMMUNICATIONS PLANS

	FIRE ALARM PANEL
	FIRE ALARM BELL
	MANUAL PULL STATION W/AUDIBLE/VISUAL INDICATING DEVICE
	FIRE ALARM MANUAL PULL STATION
	AUDIBLE/VISUAL INDICATING DEVICE
	HEAT DETECTOR: * * R - RATE-OF-RISE F - FIXED
	SMOKE DETECTOR: * * P - PHOTOELECTRIC I - IONIZATION U - UNDERFLOOR
	DUCT DETECTOR
	TELEPHONE PANEL
	TELEPHONE WALL OUTLET
	TELEPHONE FLOOR OUTLET
	CEILING MOUNTED SPEAKER
	DIRECTIONAL SPEAKER
	BI-DIRECTIONAL SPEAKER
	VOICE/DATA JACK
	VOICE WALL JACK

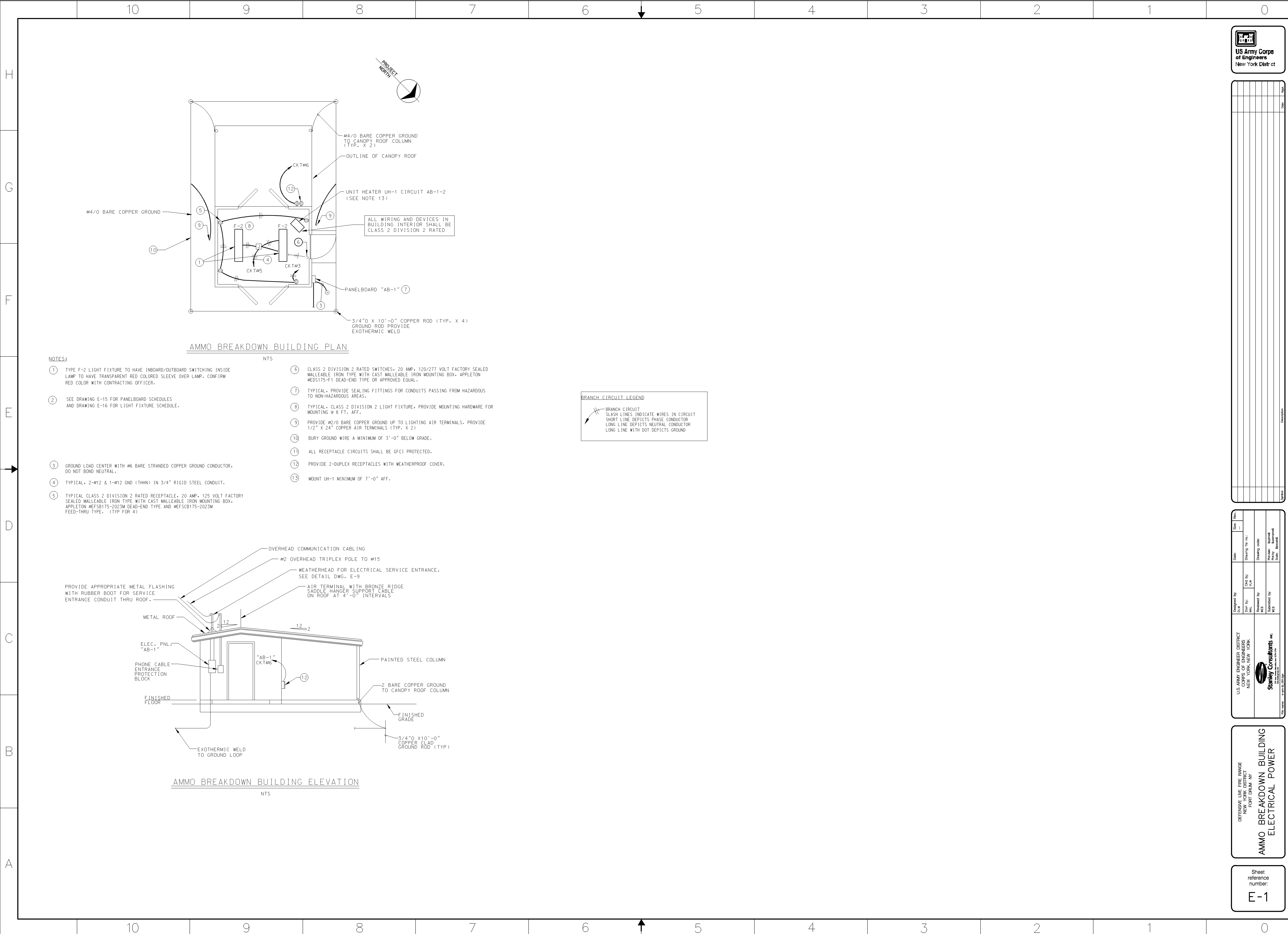
	PANEL WIRING
	FIELD WIRING
	TRANSFORMER
	TRANSFORMER W/ MAGNETIC CORE
	CONTROL TRANSFORMER
	SOLENOID VALVE
	OPERATING COIL; RELAY, MOTOR STARTER, OR CONTACTOR
	NORMALLY OPEN (N.O.) CONTACT
	NORMALLY CLOSED (N.C.) CONTACT
	FUSE
	GROUND CONNECTION
	INDICATING PILOT LIGHT LETTER INDICATES COLOR OF LENS
	SINGLE PHASE MOTOR
	DISCONNECT OR TOGGLE SWITCH
	NORMALLY OPEN MOMENTARY CIRCUIT CLOSING PUSHBUTTON SWITCH SPRING OPEN NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC
	NORMALLY CLOSED MOMENTARY CIRCUIT OPENING PUSHBUTTON SWITCH SPRING CLOSE NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC
	THREE POSITION SELECTOR SWITCH CONTACTS CLOSED IN POSITION INDICATED BY "X" NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC
	TWO POSITION SELECTOR SWITCH CONTACTS CLOSED IN POSITION INDICATED BY "X" NUMBER OF ELECTRICAL CONTACTS ON SWITCH SHOWN ON CONTROL SCHEMATIC
	3-WAY SWITCH
	LIMIT SWITCH NORMALLY CLOSED CONTACT CONTACT OPENS WHEN ACTUATED
	LIMIT SWITCH NORMALLY OPEN CONTACT CONTACT CLOSING WHEN ACTUATED
	NORMALLY OPEN LEVEL ACTUATED SWITCH CLOSING ON RISING LEVEL
	NORMALLY CLOSED LEVEL ACTUATED SWITCH OPENS ON RISING LEVEL
	NORMALLY OPEN PRESSURE OR VACUUM OPERATED SWITCH CLOSING ON INCREASING PRESSURE
	NORMALLY CLOSED PRESSURE OR VACUUM OPERATED SWITCH OPENS ON INCREASING PRESSURE

	NORMALLY OPEN TEMPERATURE ACTUATED SWITCH CLOSING ON RISING TEMPERATURE
	NORMALLY CLOSED TEMPERATURE ACTUATED SWITCH OPENS ON RISING TEMPERATURE
	ZERO SPEED SWITCH NORMALLY OPEN
	ZERO SPEED SWITCH NORMALLY CLOSED
	FOOT SWITCH CLOSING BY FOOT PRESSURE
	FOOT SWITCH OPENS BY FOOT PRESSURE
	FLOW SWITCH CLOSING ON INCREASING FLOW
	FLOW SWITCH OPENS ON INCREASING FLOW
	NORMALLY OPEN CONTACT CLOSING ON TIME DELAY AFTER COIL ENERGIZED
	NORMALLY CLOSED CONTACT OPENS ON TIME DELAY AFTER COIL ENERGIZED
	NORMALLY OPEN CONTACT CLOSING ON TIME DELAY ON DE-ENERGIZED COIL
	NORMALLY CLOSED CONTACT OPENS AFTER TIME DELAY ON DE-ENERGIZED COIL
	MOTOR CONTROL CENTER TERMINAL
	FIELD PANEL TERMINAL
	INDIVIDUAL DEVICE TERMINAL
	PLC ENCLOSURE TERMINAL

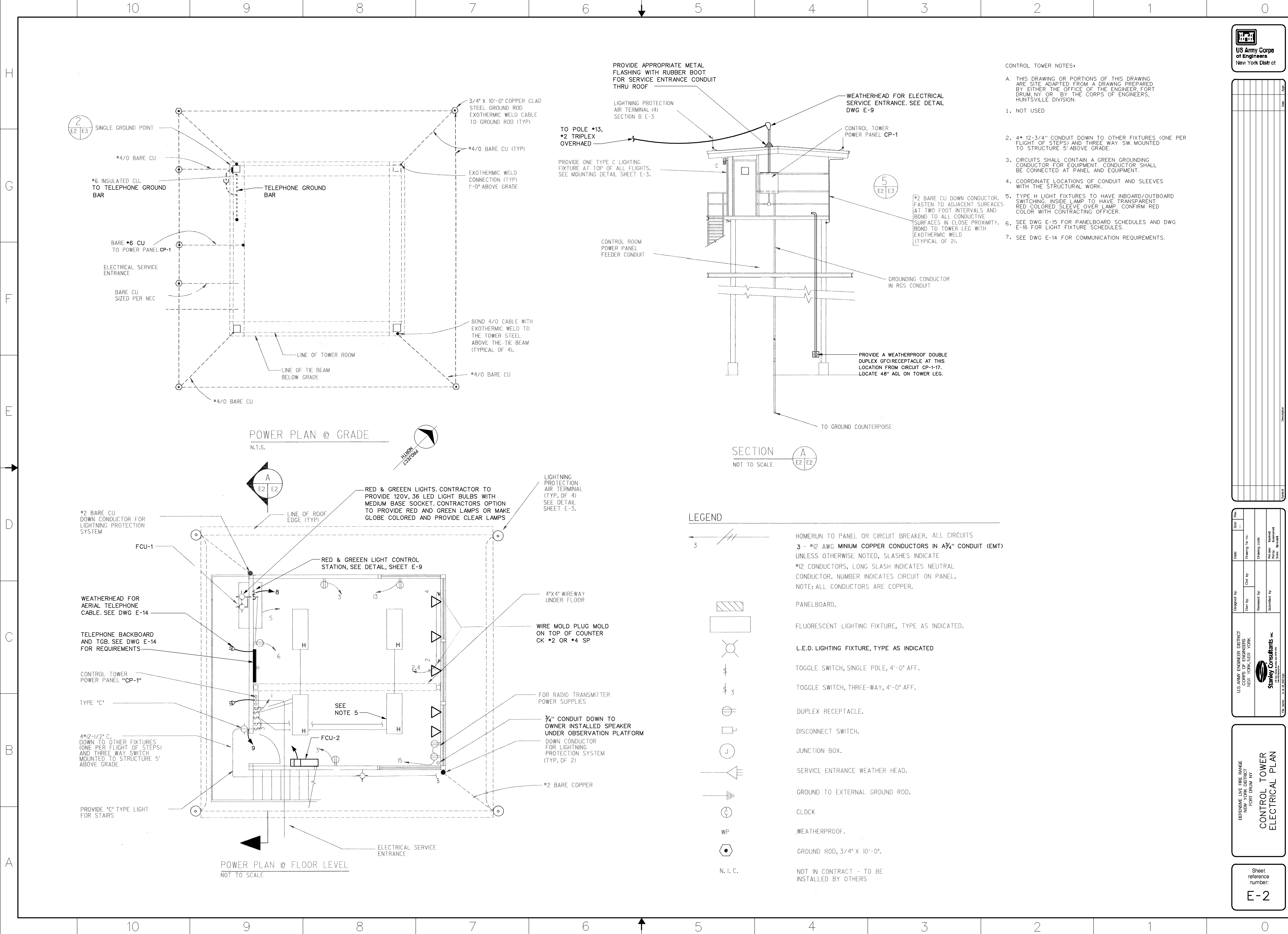
NOTES

1. ALL SYMBOLS SHOWN ON THIS DRAWING MAY NOT APPEAR ON CONTRACT DRAWINGS.
2. ALL DIMENSIONS WILL BE IN ENGLISH UNITS UNLESS NOTED OTHERWISE.
3. LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED TO COMPLY WITH THE REQUIREMENTS OF UL#96A "MASTER LABEL" AND BE FURNISHED TO THE GOVERNMENT A PLAQUE STATION SAME.

D:\13222\07-DESIGN\06-DWG\06-ELEC\SHEETS\E-04\FP_001.dwg(07 DATE: 21-JUL-2005)



01-10232-07 DESIGN OF DEFENSE LIVE FIRE RANGE NEW YORK DISTRICT CONTROL TOWER ELECTRICAL PLAN DATE: 21-JUL-2005



US Army Corps of Engineers
New York District

Design	Drawn	Checked	Reviewed	Submitted
US ARMY ENGINEER DISTRICT CORPS OF ENGINEERS NEW YORK DISTRICT	Stanley Consultants Inc.			

DEFENSE LIVE FIRE RANGE
NEW YORK DISTRICT
CONTROL TOWER
ELECTRICAL PLAN

Sheet
reference
number:
E-2



DETAIL
N. T. S.



SEE SHEET E-3 FOR LOCATION
ON FLOOR PLAN

DETAIL	5	
N. T. S.	E2	E3



DETAIL	2	
N. T. S.	E2	E3

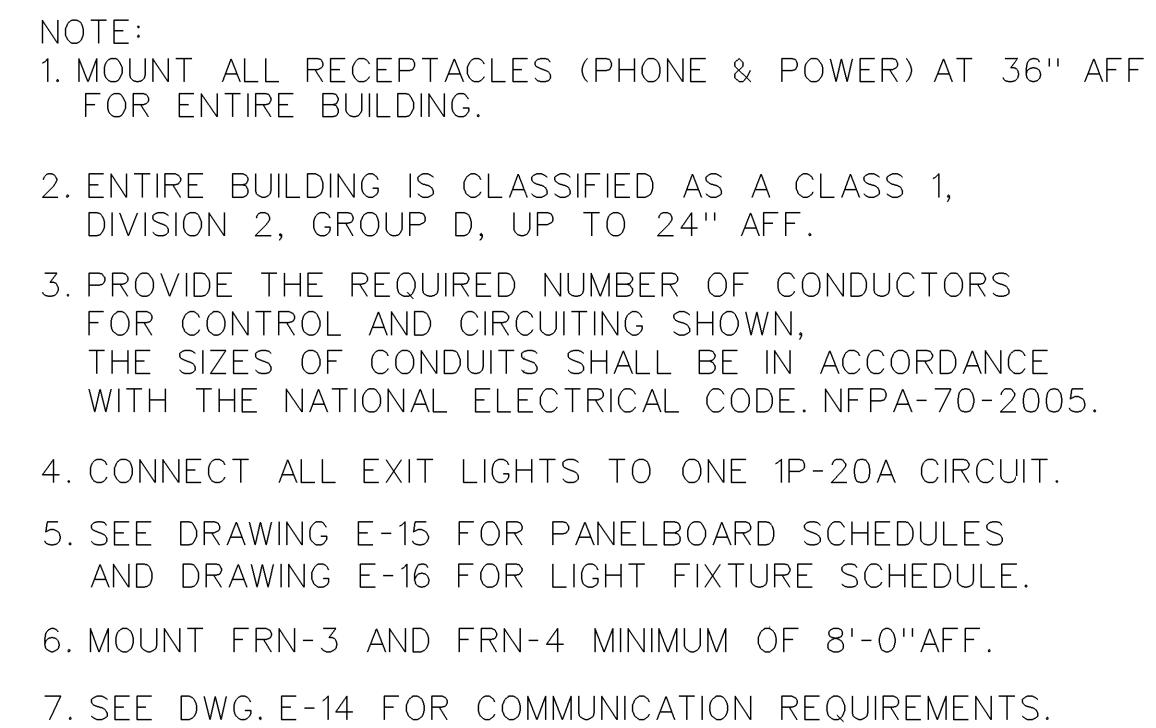
NOTES:

A. THIS DRAWING OR PORTIONS OF THIS DRAWING ARE SITE ADAPTED FROM A DRAWING PREPARED BY EITHER THE OFFICE OF THE ENGINEER, FORT DRUM, NY OR BY THE CORPS OF ENGINEERS, HUNTSVILLE DIVISION.

DEFENSIVE LIVE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM, NY

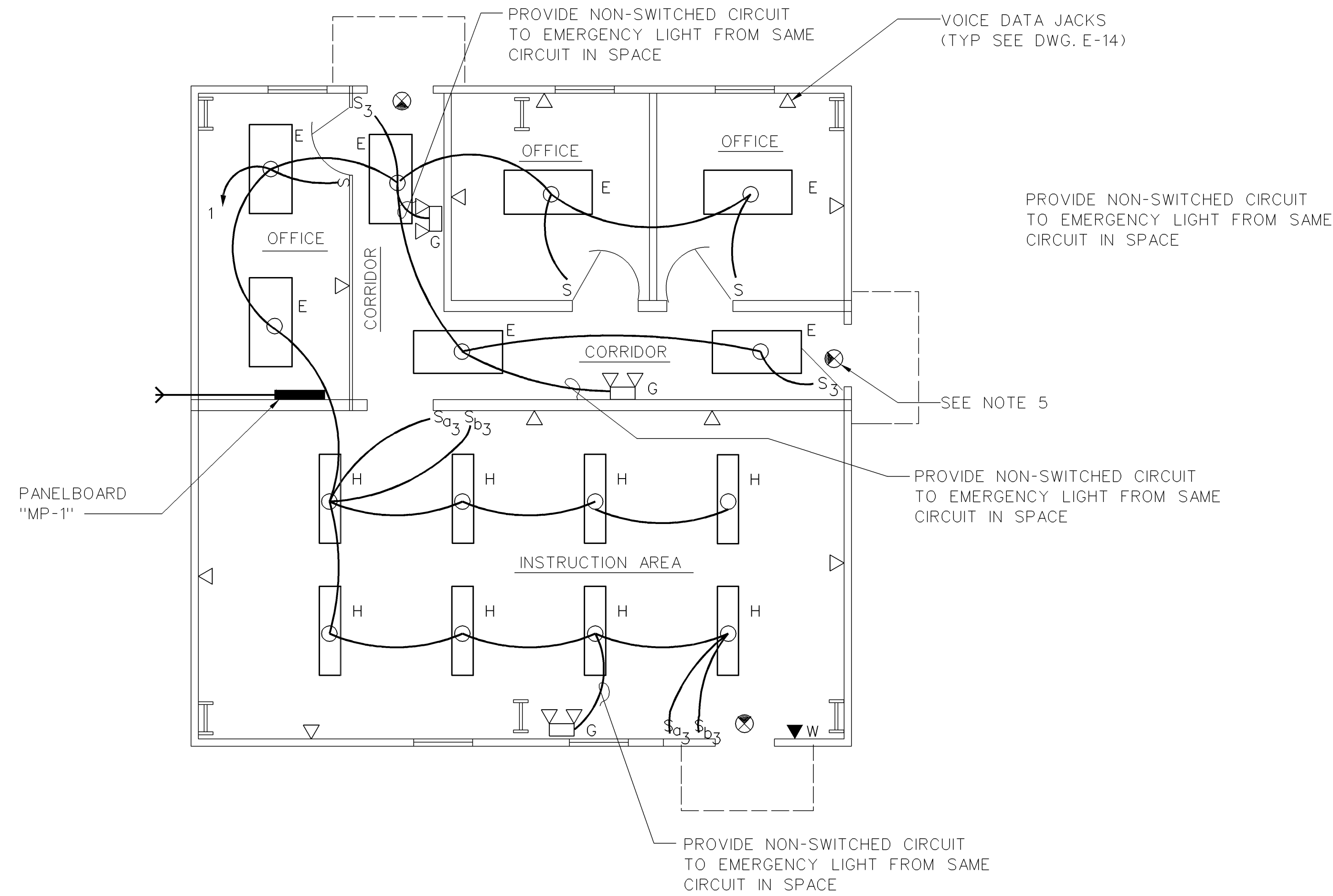
CONTROL TOWER
PLANS, DETAILS AND
SECTIONS

Sheet
reference
number:
E-3



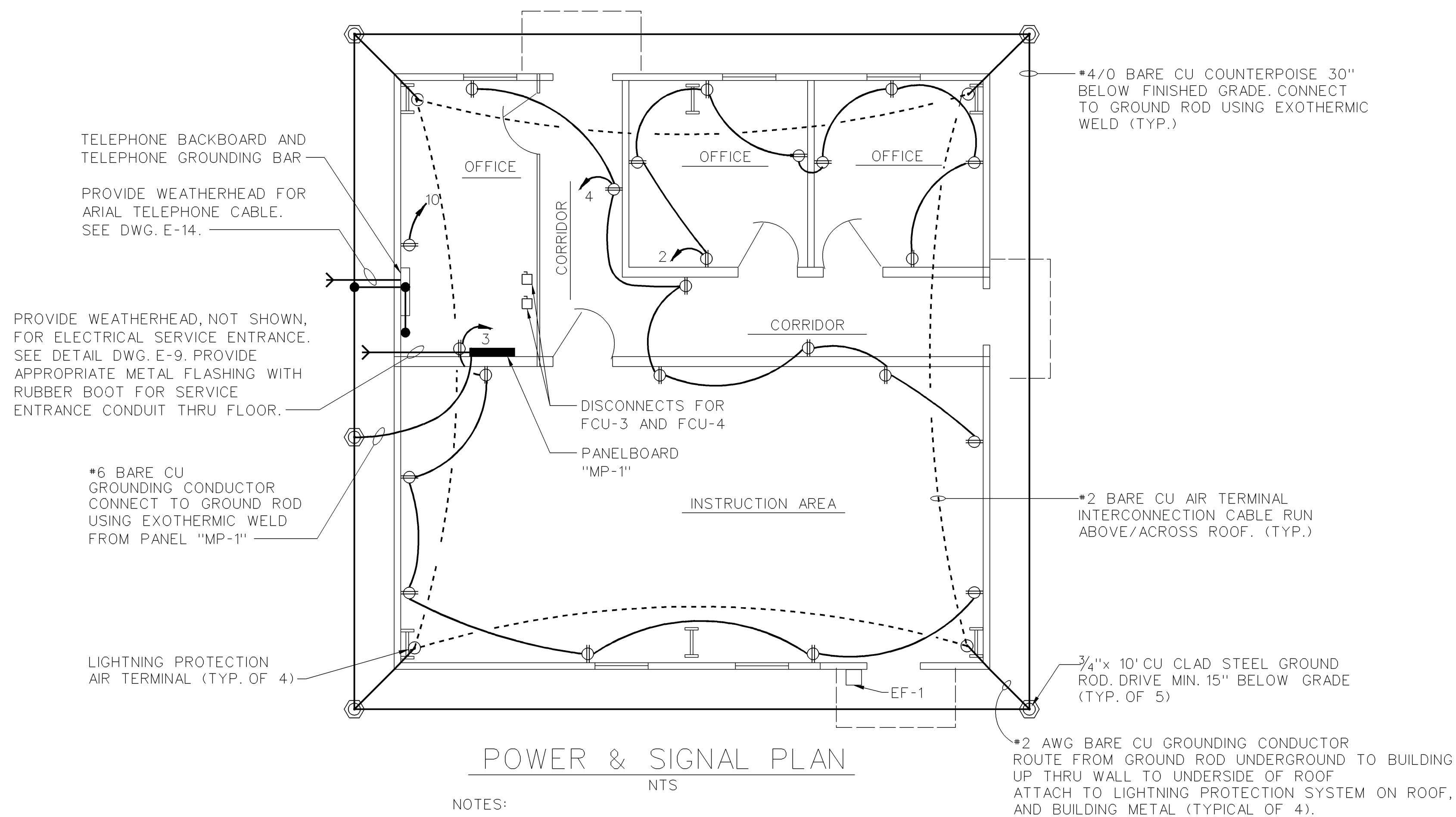
NOTES

01-13222-07 DESIGN/06 DWG-03 08 ELEC SHEETS 15 E-M/FP 086 09/03/07 DATE: 21 JUL 2005



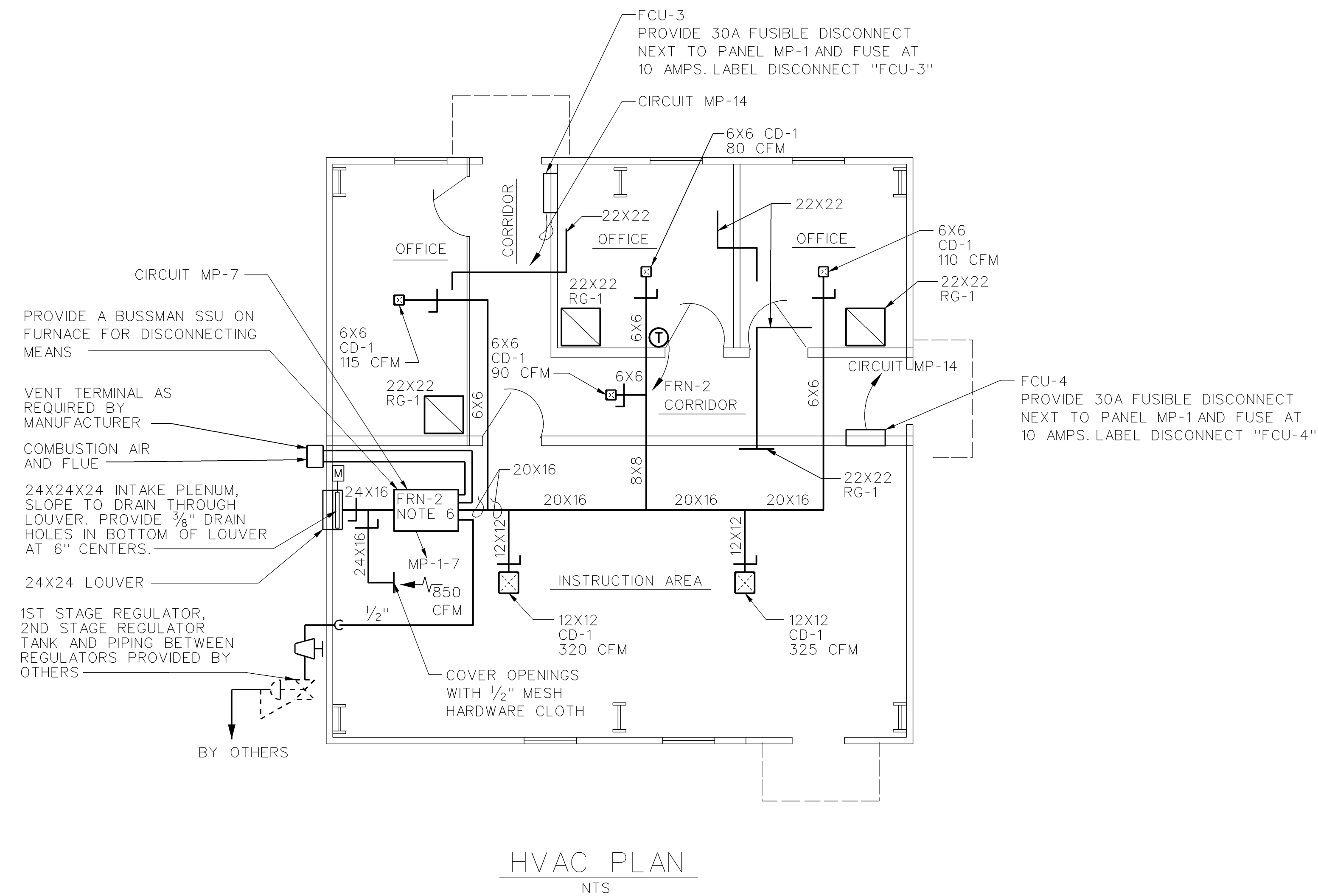
LIGHTING PLAN
NTS

- NOTES:
1. WIRE ALL EXIT LIGHTS TOGETHER TO (1) 1P/20A CIRCUIT IN PANELBOARD

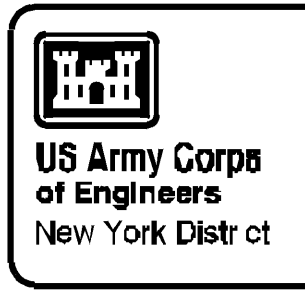


POWER & SIGNAL PLAN
NTS

- NOTES:
1. SEE HVAC PLAN FOR ELECTRICAL REQUIREMENTS TO HVAC EQUIPMENT.
 2. SPARE
 3. SEE DWG. E-15 FOR PANELBOARD SCHEDULES, E-16 FOR LIGHT FIXTURE SCHEDULE.
 4. SEE DWG. E-14 FOR COMMUNICATION REQUIREMENTS.
 5. SEE DRAWING E-15 FOR PANELBOARD SCHEDULES AND DRAWING E-16 FOR LIGHT FIXTURE SCHEDULE.
 6. MOUNT FRN-2 MINIMUM OF 8'-0" AFF.



HVAC PLAN
NTS



Rev	By	Date	Description
1	WLB	06/03/05	ISSUED FOR CONSTRUCTION

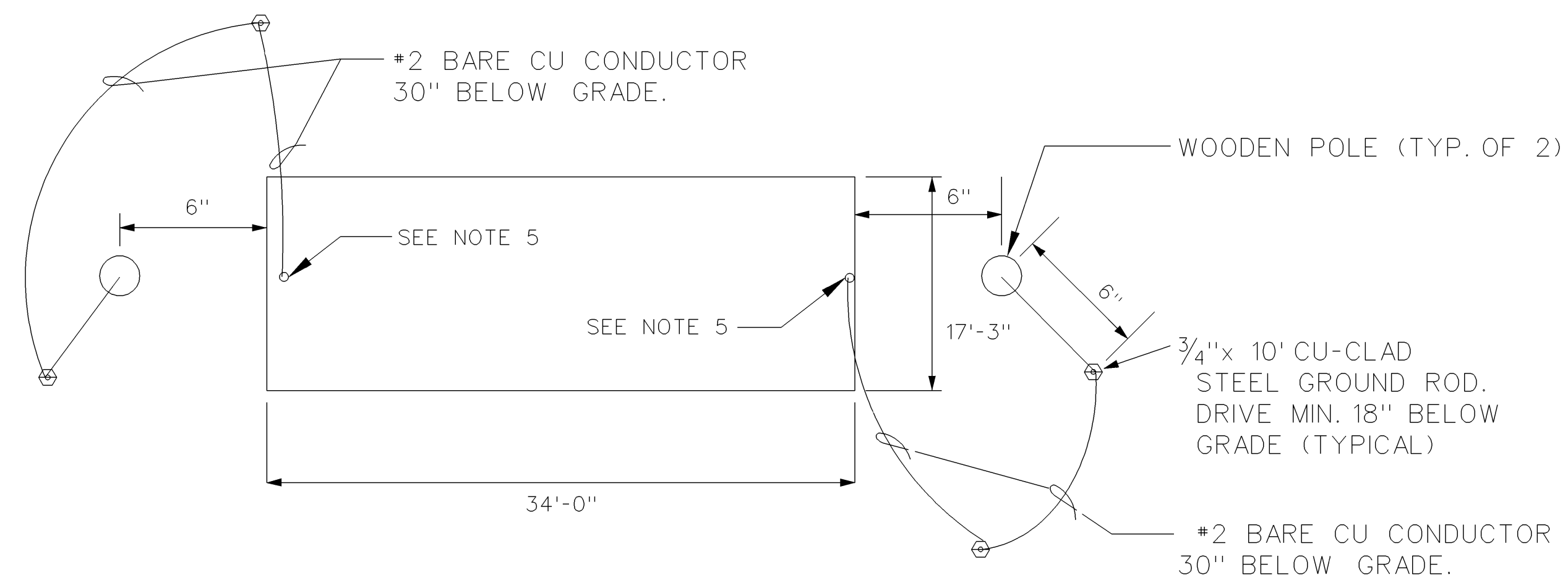
Designed by WLB	Drawn by WLB	Checked by WLB	Reviewed by WLB	Submitted by WLB	Approved by WLB
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS NEW YORK DISTRICT NEW YORK, NEW YORK					
Stanley Consultants Inc. 100 West Street New York, NY 10038					

DEFENSIVE LIVE FIRE RANGE
NEW YORK DISTRICT
MULTIPURPOSE BUILDING
ELECTRICAL

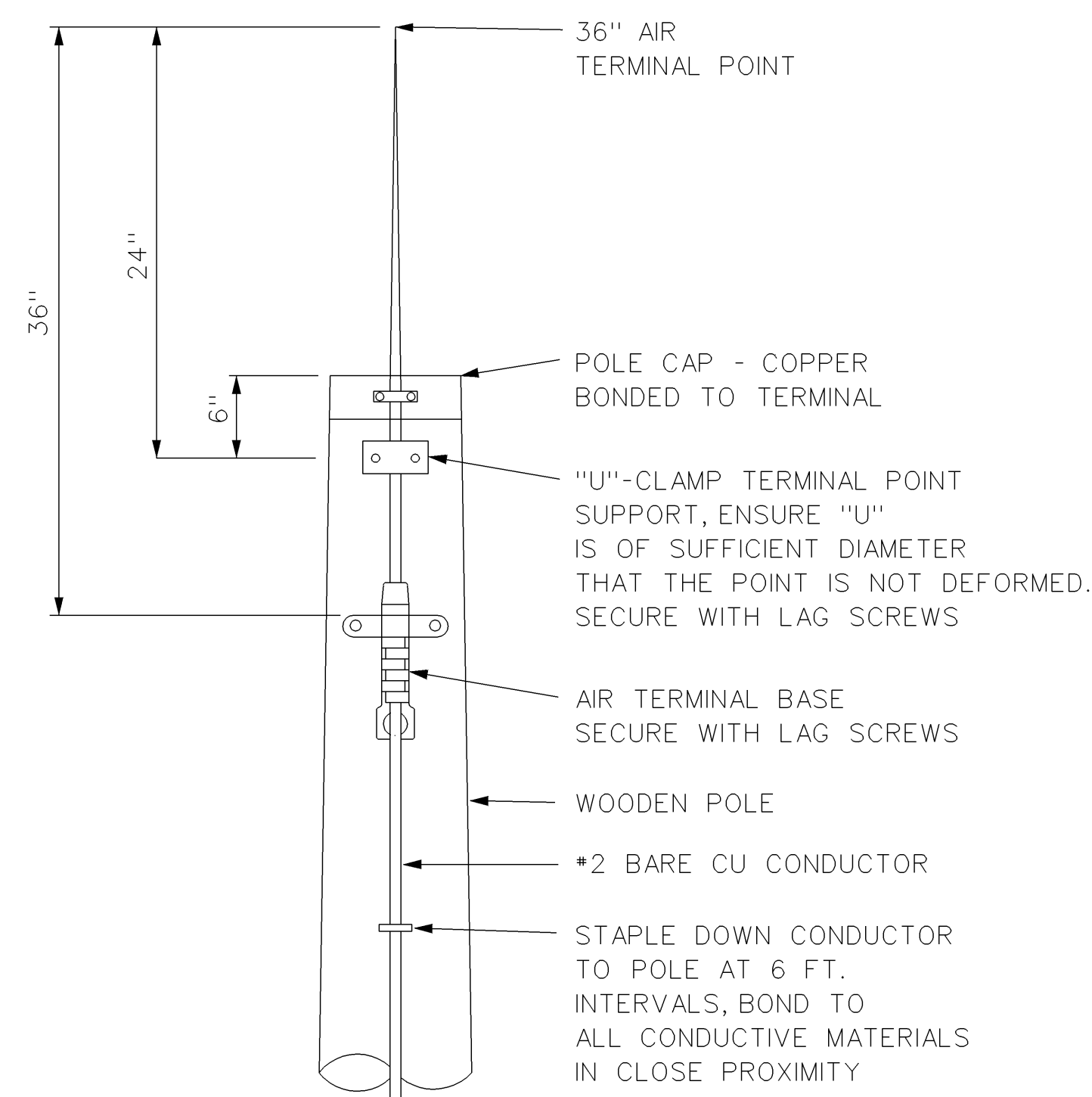
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reference
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E-6

01-18222-07 DESIGN/05-DWG/05-WP-ELED-SHEETS/5-BL-01-007-000/01 DATES: 21-JUL-2005

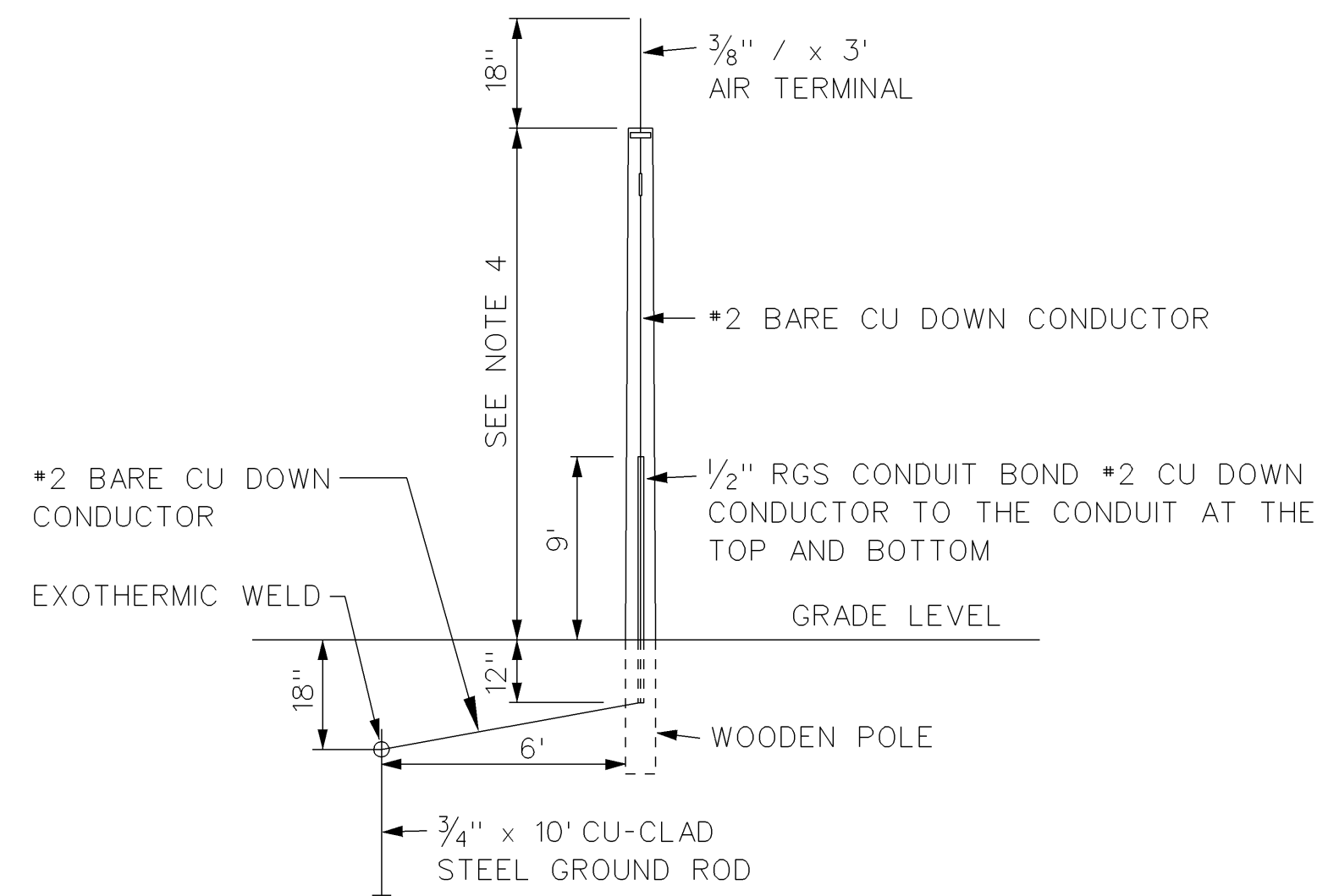
A
B
C
D
E
F
G
H



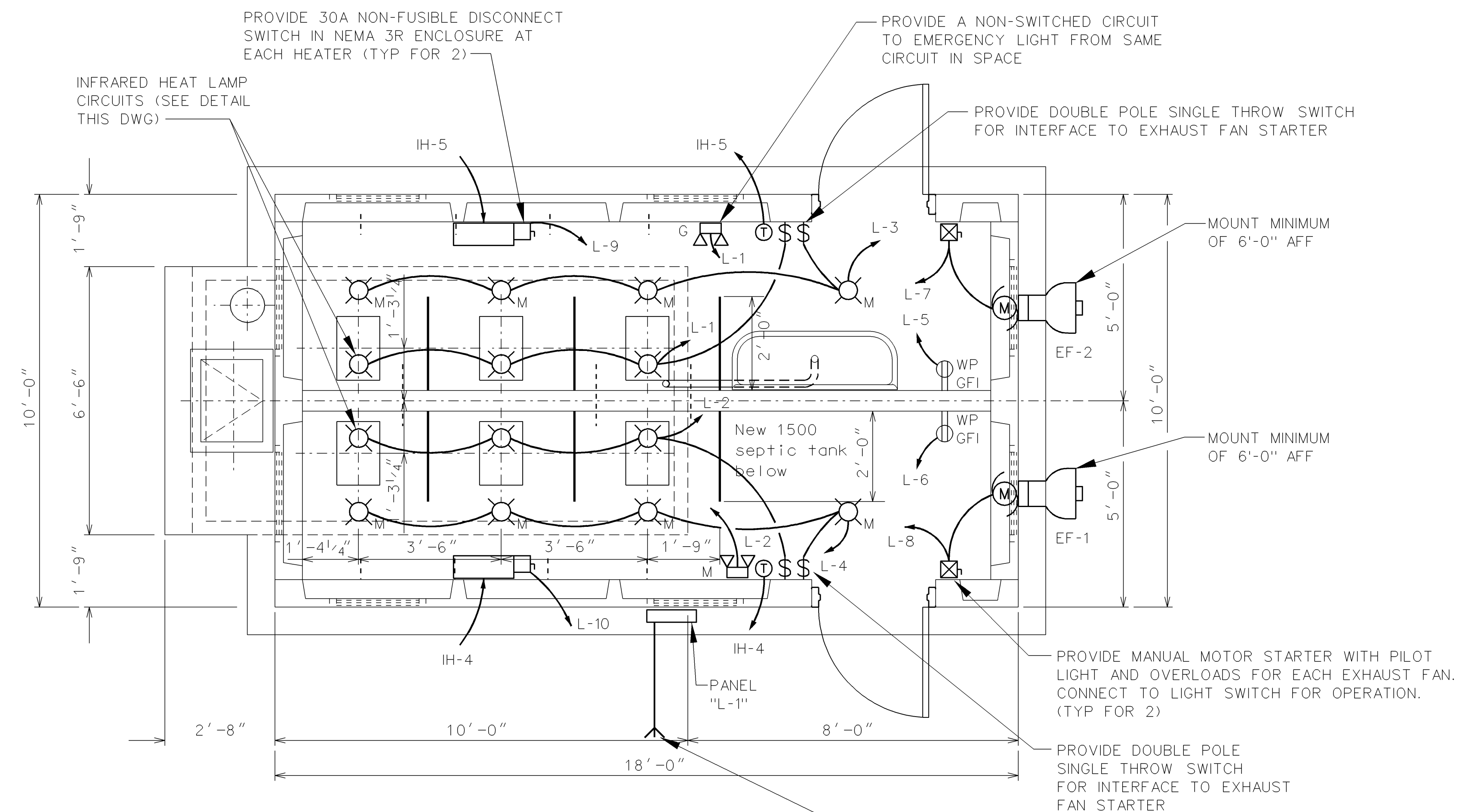
BLEACHER ENCLOSURE
LIGHTNING PROTECTION
NTS



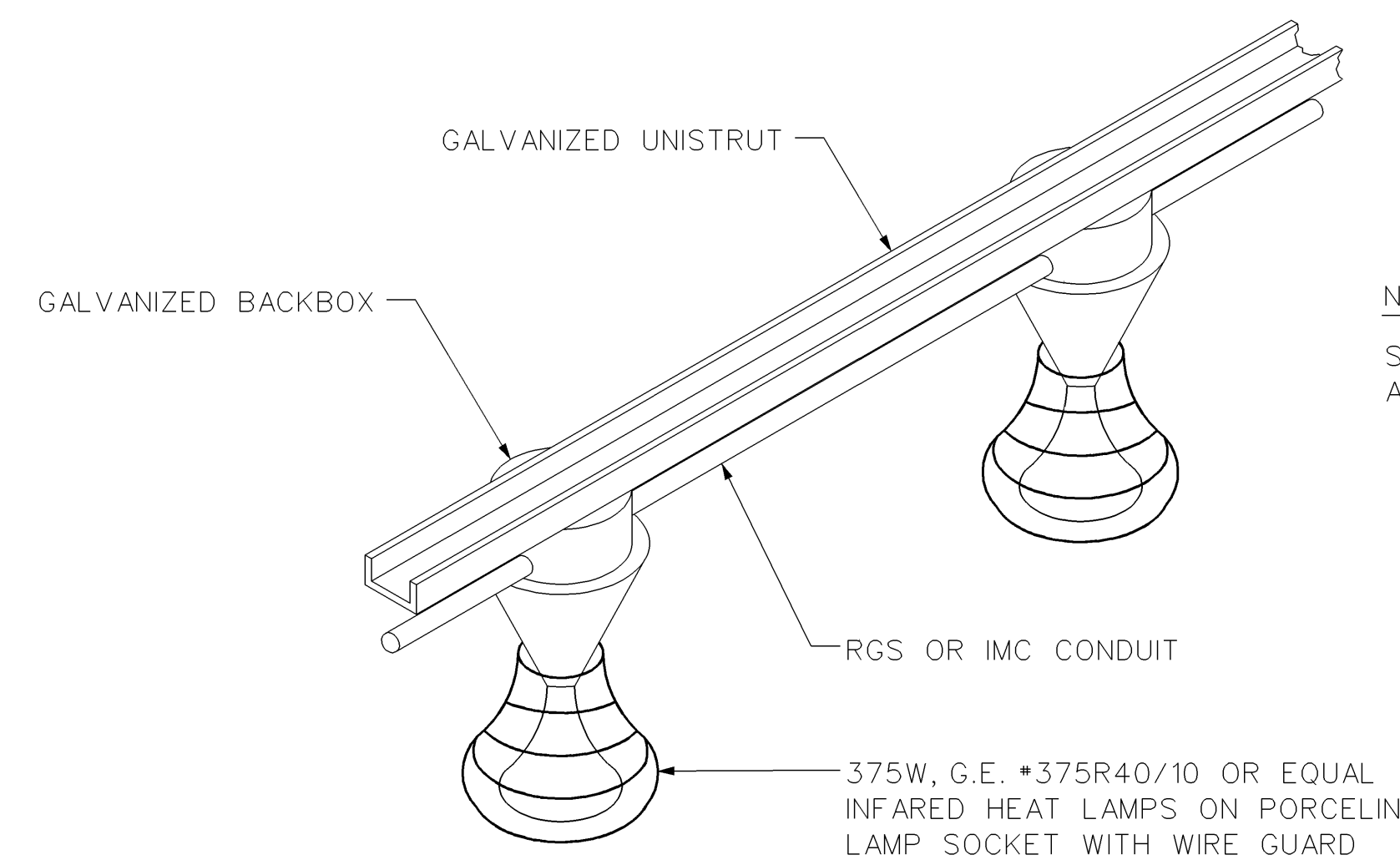
LIGHTNING PROTECTION
AIR TERMINAL DETAIL
NTS



LIGHTNING PROTECTION
ELEVATION AT BLEACHER ENCLOSURE
NTS



LATRINE FLOOR PLAN
NTS



LATRINE INFRARED
HEAT LAMP DETAIL
NTS

NOTES:
SEE DWG E15 FOR PANELBOARD SCHEDULES
AND E-16 FOR LIGHTING FIXTURE SCHEDULES.

- NOTES:
- POLES SHALL BE WOOD, FULL LENGTH PRESSURE TREATED.
 - COMPONENTS AND MATERIALS SHALL COMPLY WITH AND BE INSTALLED IN ACCORDANCE WITH NFPA 780.
 - NOT USED
 - HEIGHT AND CLASS OF POLES IS DEPENDENT ON SIZE AND HEIGHT OF THE BLEACHER ENCLOSURE, DESIGN IN ACCORDANCE WITH NFPA 780.
 - STRUCTURE SUPPORTS SHALL BE GROUNDED AND CONNECTED TO THE LIGHTNING PROTECTION SYSTEM GROUND RODS BELOW GRADE.

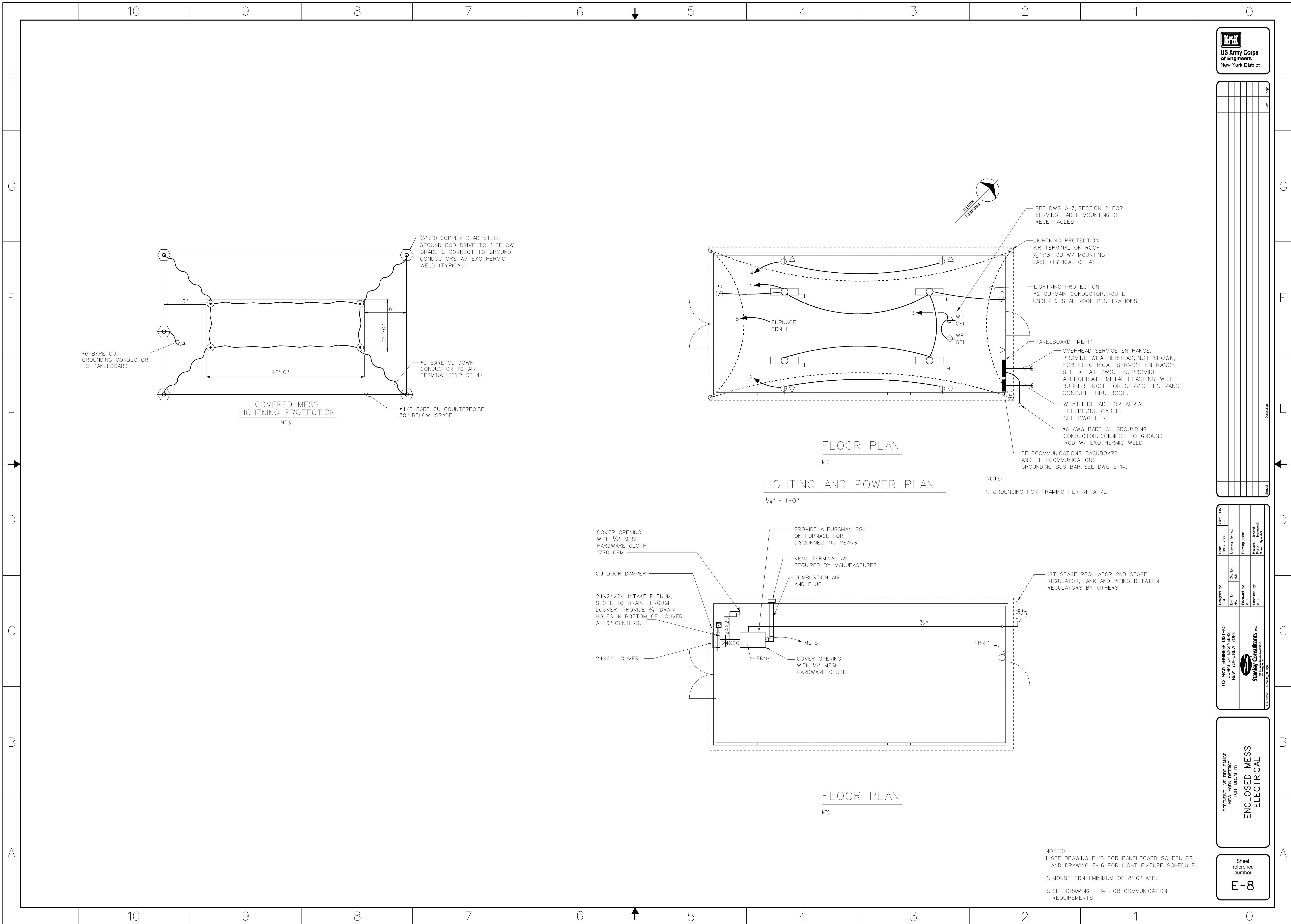
US Army Corps
of Engineers
New York District

Revised	By	Checked	Design	Drawn	Scale
1	WEL	WEL	WEL	WEL	1/8" = 1'-0"
2	WEL	WEL	WEL	WEL	1/8" = 1'-0"
3	WEL	WEL	WEL	WEL	1/8" = 1'-0"
4	WEL	WEL	WEL	WEL	1/8" = 1'-0"
5	WEL	WEL	WEL	WEL	1/8" = 1'-0"
6	WEL	WEL	WEL	WEL	1/8" = 1'-0"
7	WEL	WEL	WEL	WEL	1/8" = 1'-0"
8	WEL	WEL	WEL	WEL	1/8" = 1'-0"
9	WEL	WEL	WEL	WEL	1/8" = 1'-0"
10	WEL	WEL	WEL	WEL	1/8" = 1'-0"

DEFENSIVE LINE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM NY
LATRINE
ELECTRICAL

Sheet
reference
number:
E-7

01-18222-07-DESIGN-08-DWG-08-ELECT-SHEETS-16-FP-08B-DWG-07-DWG-21-JUL-2005



Rev	By	Date	Description
1	MEB	07/01/05	Issue

Rev	By	Date	Description
1	MEB	07/01/05	Issue



11110222\07-DECISIONS\08-PUCC\08-ELEC\CUPERTV.E-MC.01 000 DCNEN OT DATE 21-III-2008

01-13222-07 DESIGN/005-DWG/005-WP-ELEC SHEETS 15-05-01-010-0000-01 DATE: 21-JUL-2005

H

G

F

E

D

C

B

A

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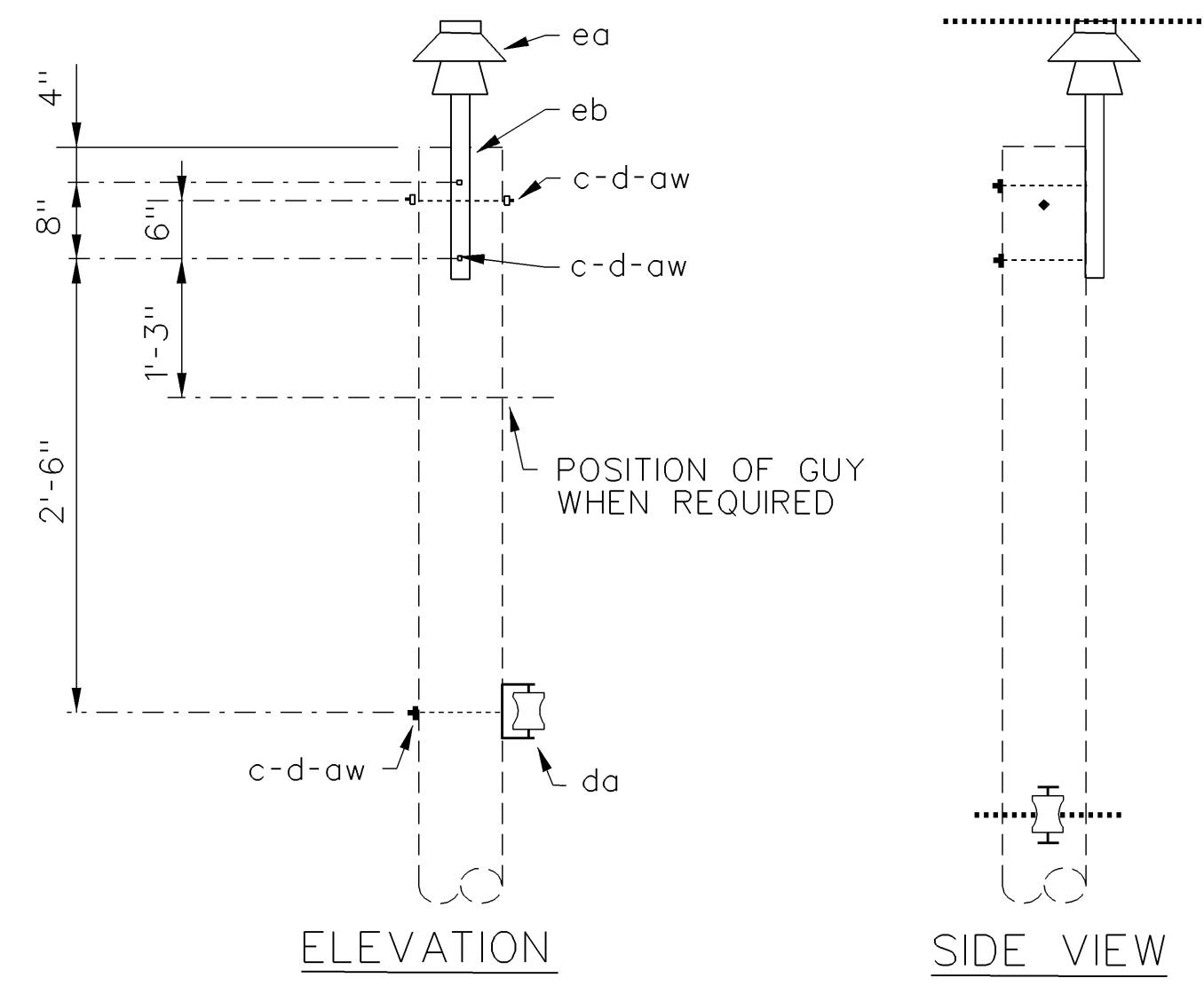
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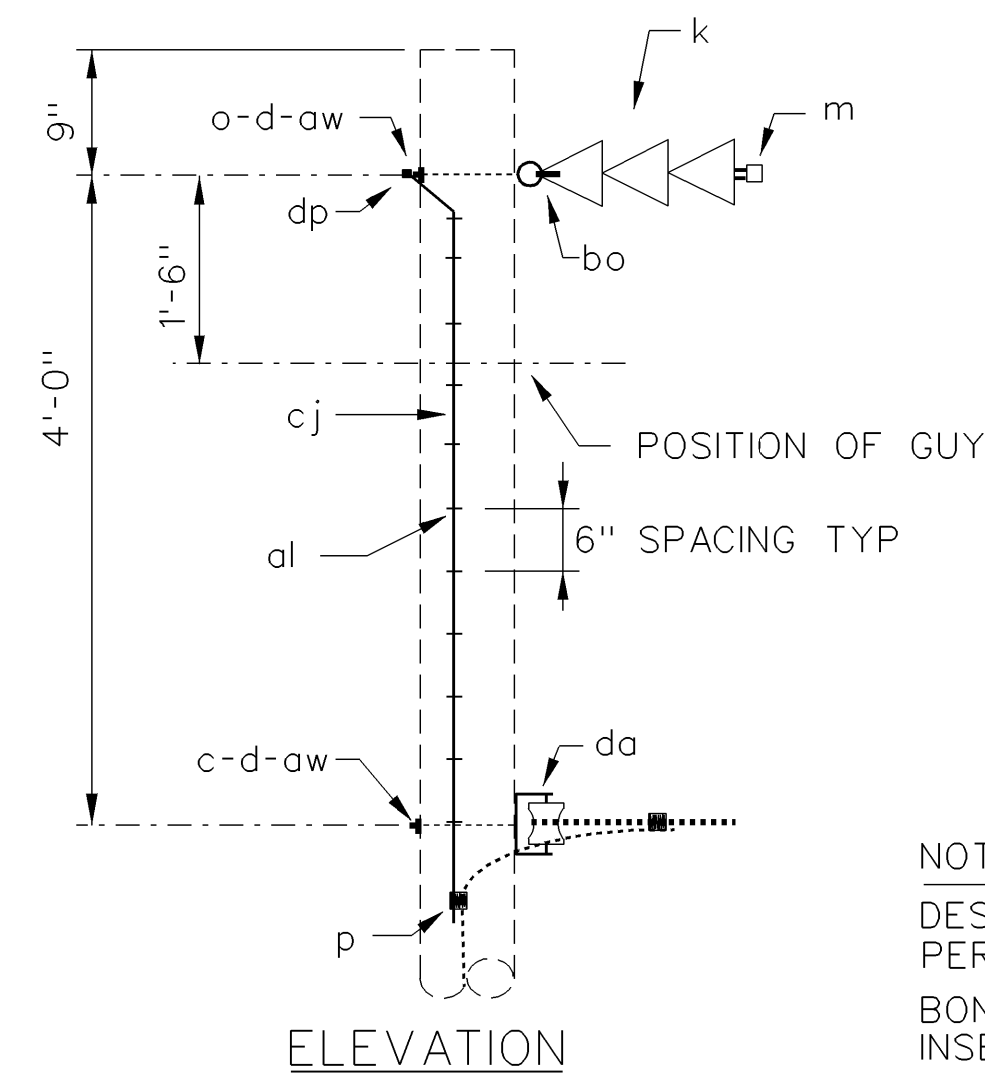
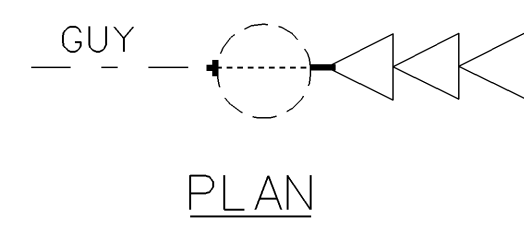


c	4	BOLT, MACHINE 5/8" X REQ'D LTH
d	5	WASHER, SQ, 2 1/4", 13/16" HOLE
aw	4	WASHER, DOUBLE COIL, 1/16" HOLE
da	1	BRACKET, INSULATED, NEUTRAL
ea	1	EPOXY INSULATOR, PIN TYPE, SHORT STUD (15 KV AS REQ'D) CLASS 52.9
eb	1	PIN, POLE TOP, PIN TYPE

NOTES:
MAX TRANSVERSE LOAD: 750 LBS/PIN.

1-PHASE SINGLE PRIMARY SUPPORT

ASSEMBLY TYPE A1
NO SCALE

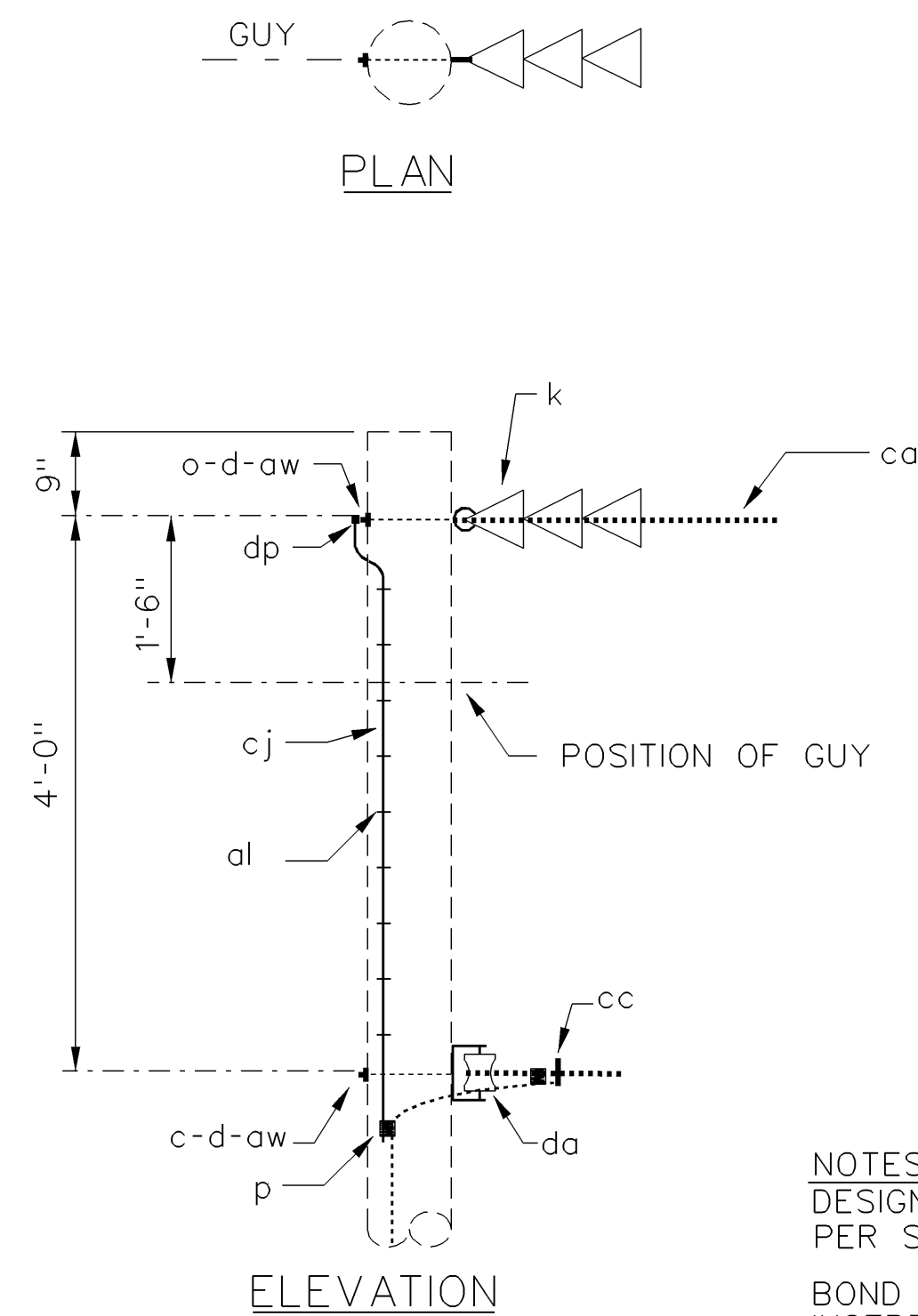


c	1	BOLT, MACHINE 5/8" X REQ'D LTH	aw	2	WASHER, DOUBLE COIL, 1/16" HOLE
d	2	WASHER, SQ, 2 1/4", 13/16" HOLE	bo	1	SHACKLE, ANCHOR
k	3-4	EPOXY INSULATOR, SUSPENSION CLASS 52.9	cj		GROUND WIRE, NO. 6 COPPER OR EQUIV
m	1	CLAMP, SUSPENSION, SIZE AS REQ'D	da	1	BRACKET, INSULATED, NEUTRAL
o	1	BOLT, EYE 5/8" X REQ'D LENGTH	dp	1	CLAMP, GROUND WIRE
p		CONNECTOR, AS REQ'D			
al		STAPLES, GROUND WIRE, AS REQUIRED			

ANGLE: 20° -60°

1-PHASE VERTICAL CONSTRUCTION

ASSEMBLY TYPE A3
NO SCALE

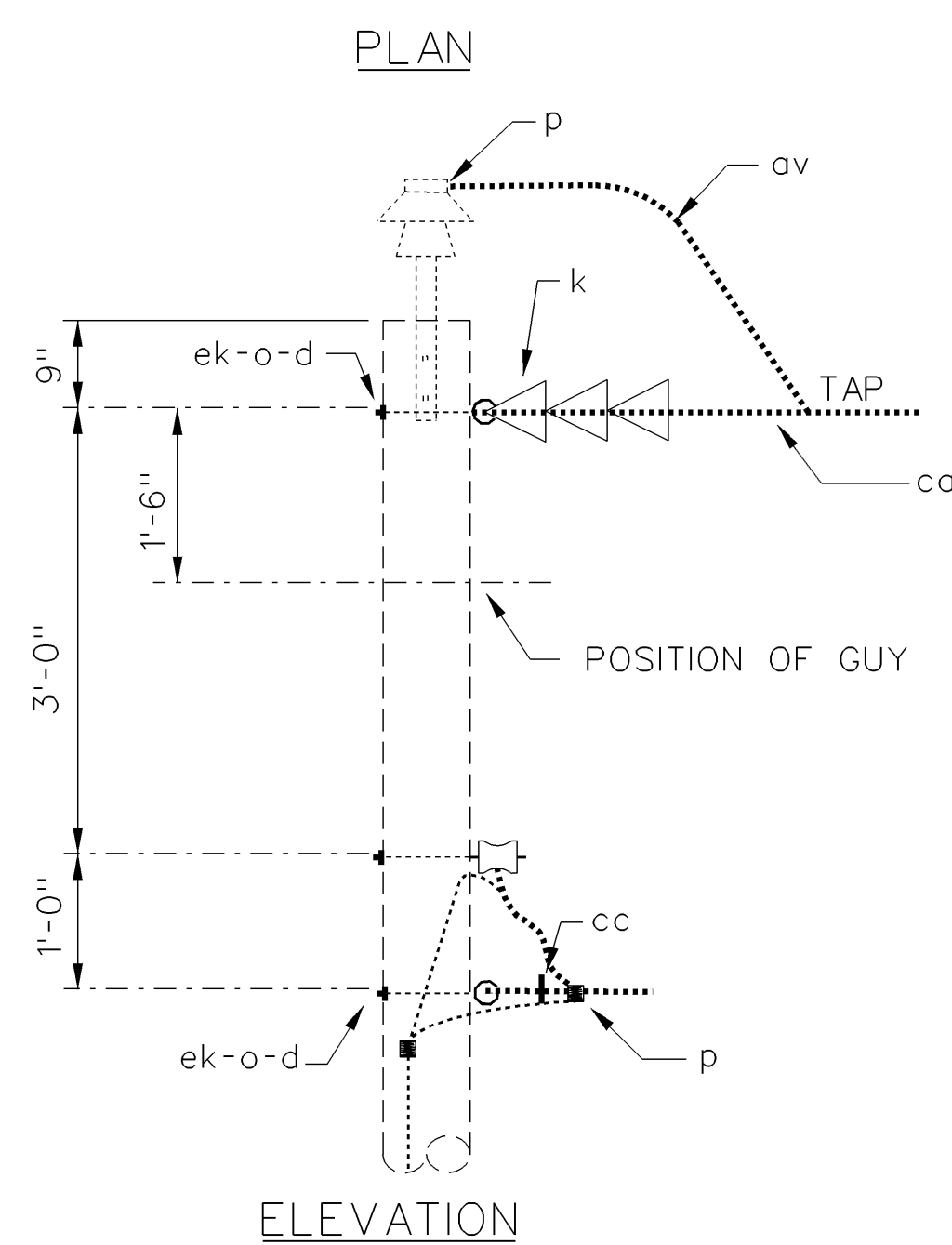
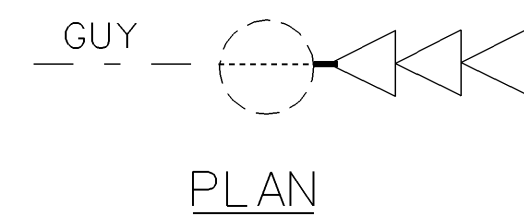


c	1	BOLT, MACHINE 5/8" X REQ'D LTH	aw	2	WASHER, DOUBLE COIL, 1/16" HOLE
d	2	WASHER, SQ, 2 1/4", 13/16" HOLE	ca	1	D.E. ASSY, PRI, SIZE AS REQ'D
k	3-4	EPOXY INSULATOR, SUSPENSION, CLASS 52.9	cc	1	D.E. ASSY, NEUT, SIZE AS REQ'D
o	1	BOLT, EYE 5/8" X REQ'D LENGTH	cj	1	GROUND WIRE, NO. 6 COPPER OR EQUIV
p		CONNECTOR, AS REQ'D	da	1	BRACKET, INSULATED, NEUTRAL
al		STAPLES, GROUND WIRE, AS REQUIRED	dp		CLAMP, GROUND WIRE
aq		JUMPER, AS REQ'D			

NOTES:
DESIGNATE AS VA5 FOR 3 INSULATORS PER STRING.
BOND HARDWARE AS SHOWN. USE GND STUD INSERTS ON CONCRETE POLES.

1-PHASE VERTICAL CONSTRUCTION SINGLE DEADEND

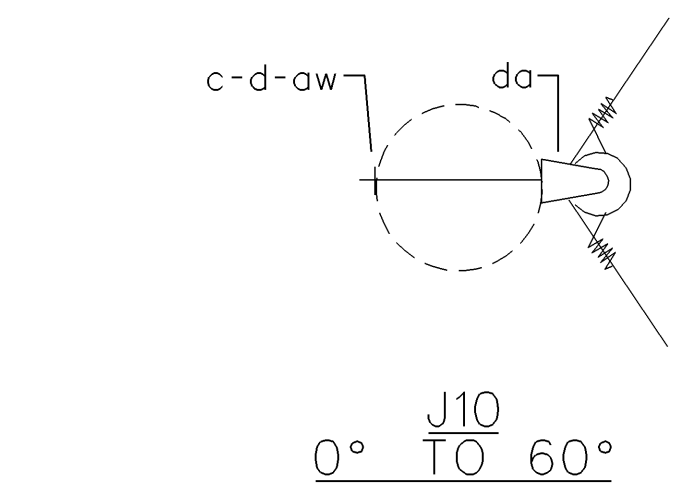
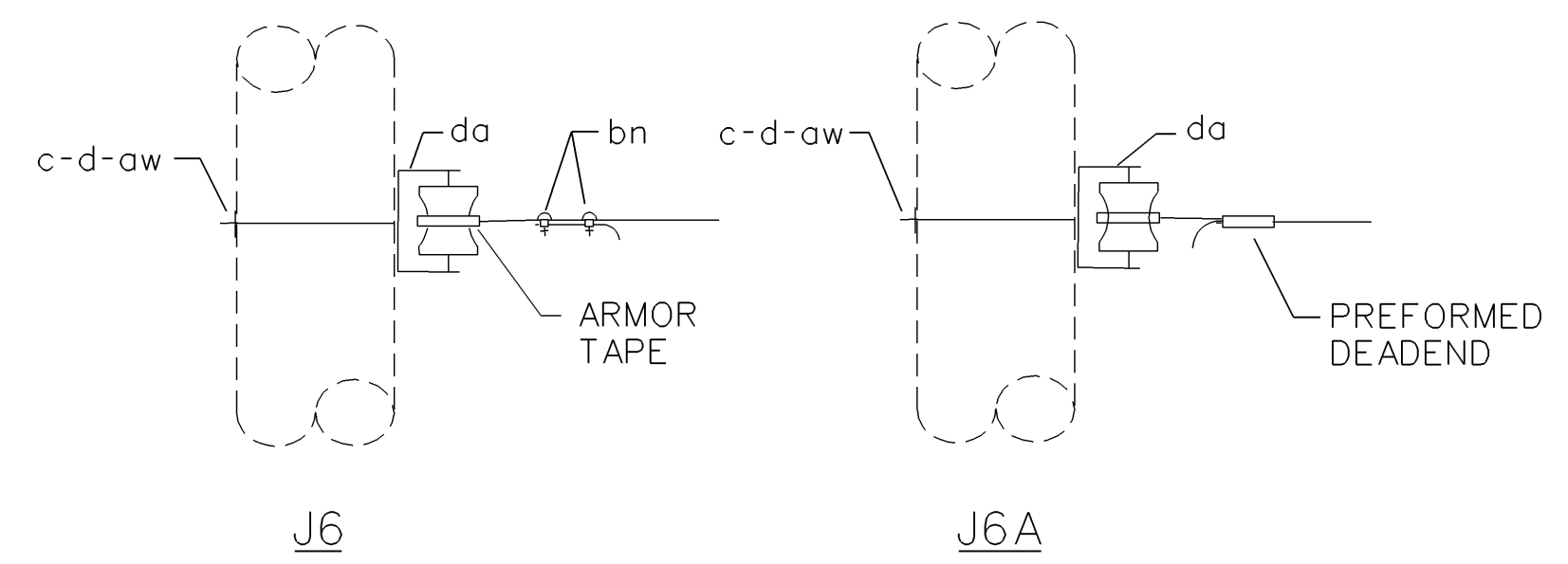
ASSEMBLY TYPE A5
NO SCALE



d	2	WASHER, 2 1/4" X 2 1/4" X 3/16", 13/16" hole
k	2	EPOXY INSULATOR, SUSPENSION CLASS 52.9
o	2	BOLT, EYE, 5/8" X REQ'D LENGTH
p		CONNECTORS, AS REQ'D
aa		NUT, EYE, 5/8"
av		JUMPERS, AS REQUIRED
ca	1	DEADEND ASSEMBLY, PRIMARY
cc	1	DEADEND ASSEMBLY, NEUTRAL
ek		LOCKNUTS, AS REQUIRED

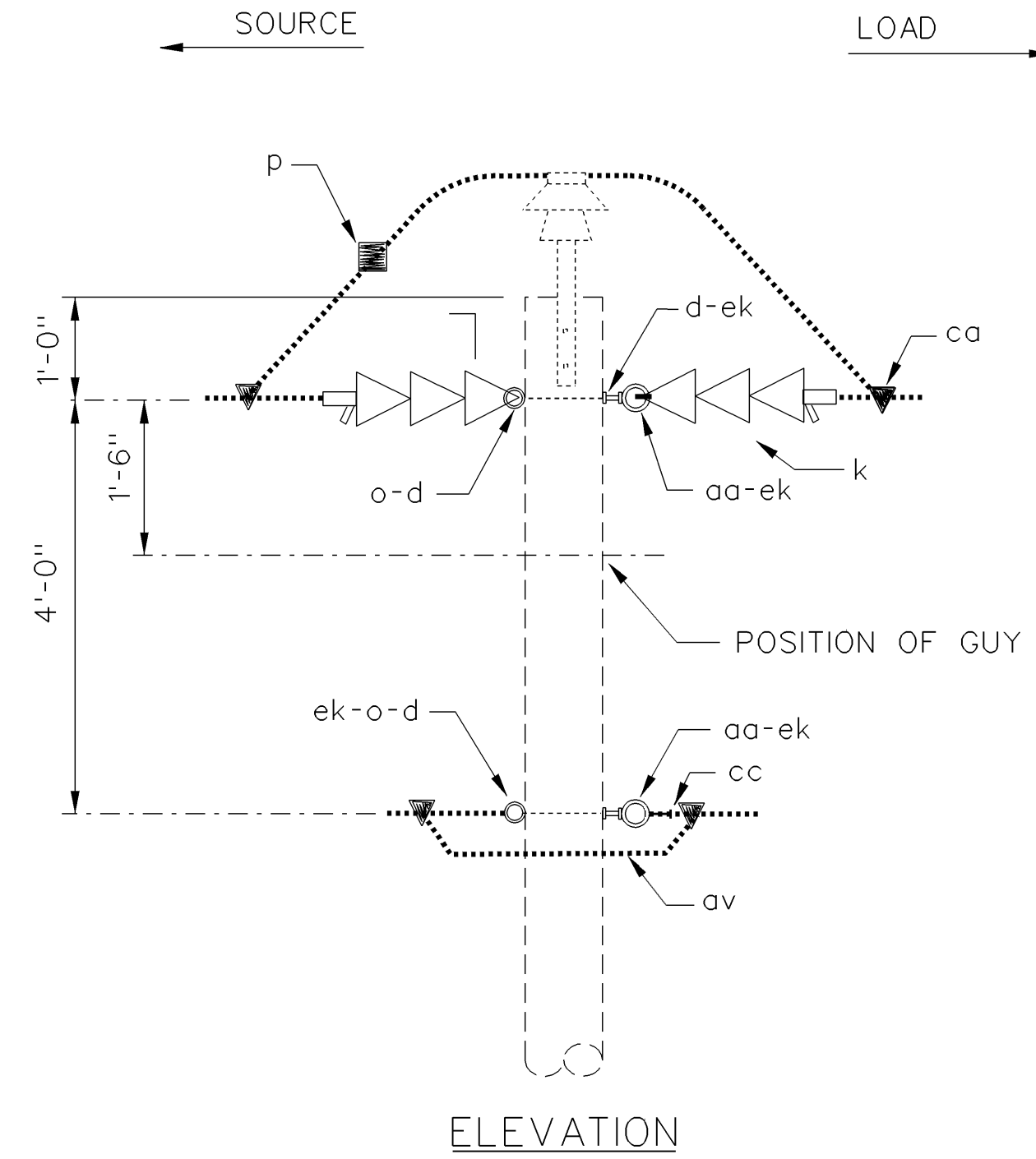
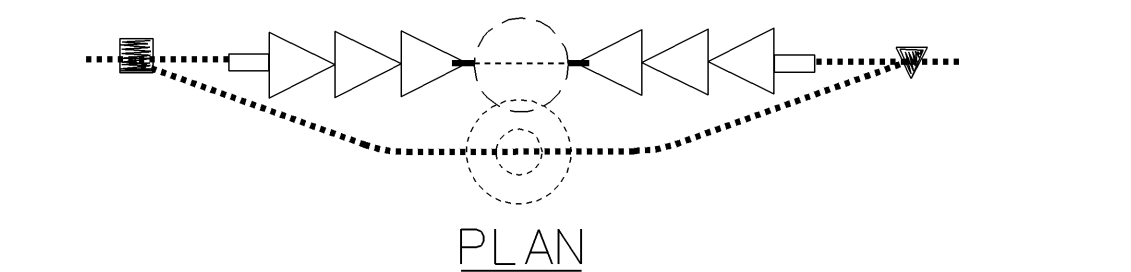
1-PHASE VERTICAL SINGLE PHASE TAP

ASSEMBLY TYPE A5-1
NO SCALE



c		BOLT, MACHINE 5/8" X REQ'D LTH
d		WASHER, SQ, 2 1/4", 13/16" HOLE
aw		WASHER, DOUBLE COIL, 1/16" HOLE
bn		CLAMP LOOP DEADEND
da		BRACKET, INSULATED, NEUTRAL

SECONDARY ASSEMBLIES



d	4	WASHER, 2 1/4" X 2 1/4" X 3/16", 13/16" hole
k	4	EPOXY INSULATOR, SUSPENSION CLASS 52.9
o	2	BOLT, EYE, 5/8" X REQ'D LENGTH
p		CONNECTORS, AS REQ'D
aa	2	NUT, EYE, 5/8"
av		JUMPERS, AS REQUIRED
ca	2	DEADEND ASSEMBLY, PRIMARY
cc	2	DEADEND ASSEMBLY, NEUTRAL
ek		LOCKNUTS, AS REQUIRED

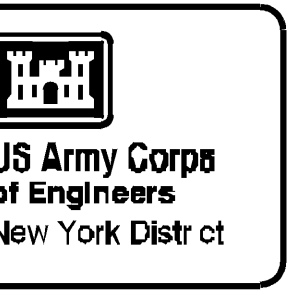
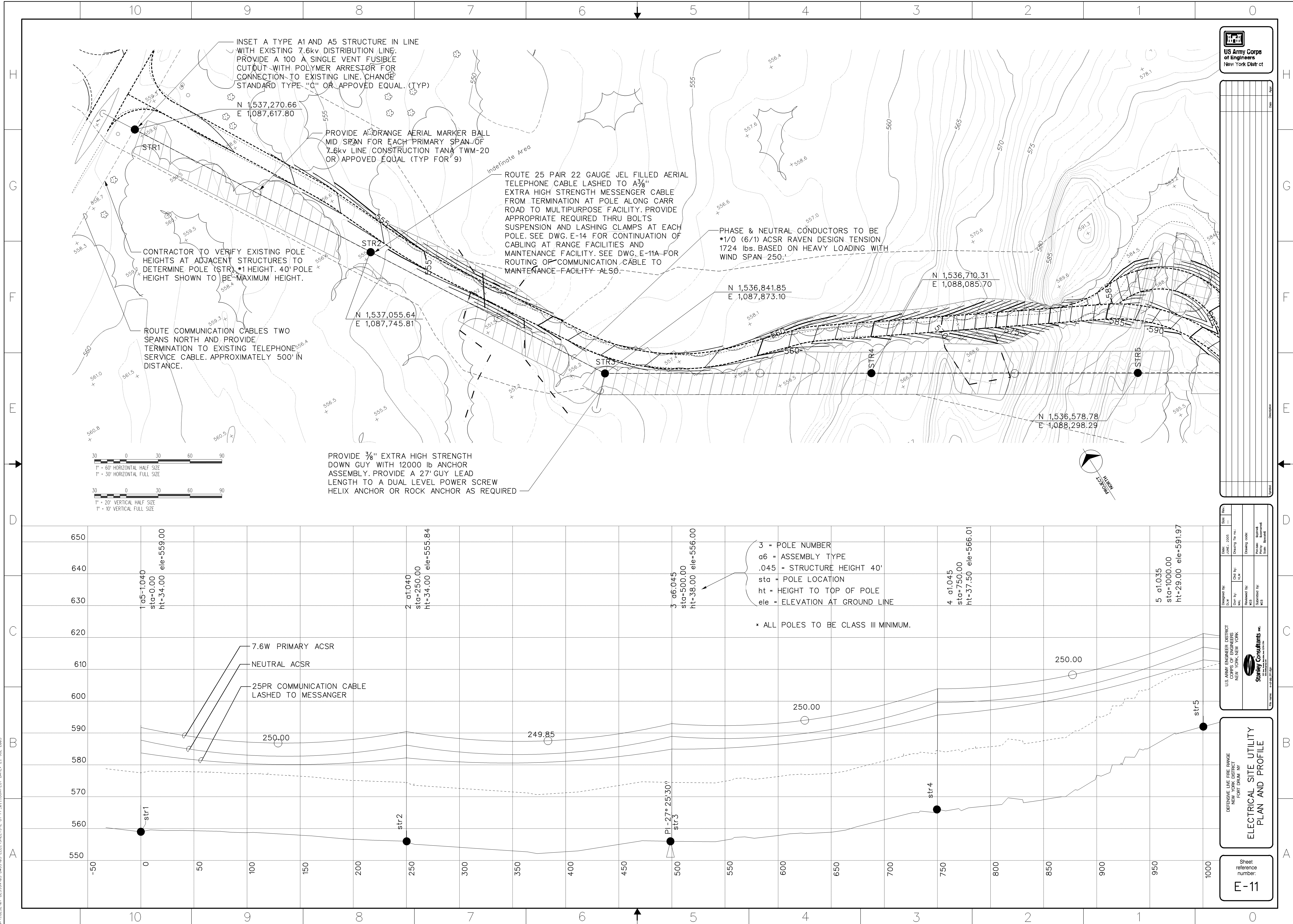
1-PHASE VERTICAL DEADEND (DOUBLE)

ASSEMBLY TYPE A6
NO SCALE

NOTES

- ALL POLES TO HAVE #6 BARE COPPER GROUND WIRE MINIMUM.
- PROVIDE COPPER GROUNDING BUTT PLATES ON ALL POLES AND BOND #6 POLE GROUND TO PLATE.
- ALL POLES TO BE CLASS 3 MINIMUM.
- COMMUNICATION UNDER BUILD TO BE 6' BELOW NEUTRAL ON ELECTRICAL PRIMARY STRUCTURES
- PROVIDE 16,000 LB FIBERGLASS STRAIN INSULATORS WITH CLEVIS ENDS, PINS AND ROLLERS SUITABLE FOR 3/8 DOWN GUY WIRES. INSERT IN ALL DOWN GUY USE PREFORMED DEADENDS GUY GRIPS FOR CONNECTIONS TO INSULATION ROLLER. CHANCE *GS1636 CC2 OR EQUAL.
- COORDINATE WITH BASE COMMUNICATIONS ALL REQUIREMENTS SHOWN ON AERIAL PLAN AND PROFILES ON DWG E-14.

04-13222-07 DESIGN/04-05-08 ELEC SHEETS E-17 PP-011, 004/01 DATED: 21 JUL 2005



Rev	Date	By	Check	Appr
1	2005	WML	WML	WML
2	2005	WML	WML	WML
3	2005	WML	WML	WML
4	2005	WML	WML	WML
5	2005	WML	WML	WML
6	2005	WML	WML	WML
7	2005	WML	WML	WML
8	2005	WML	WML	WML
9	2005	WML	WML	WML
10	2005	WML	WML	WML

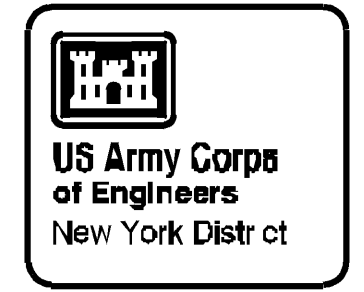
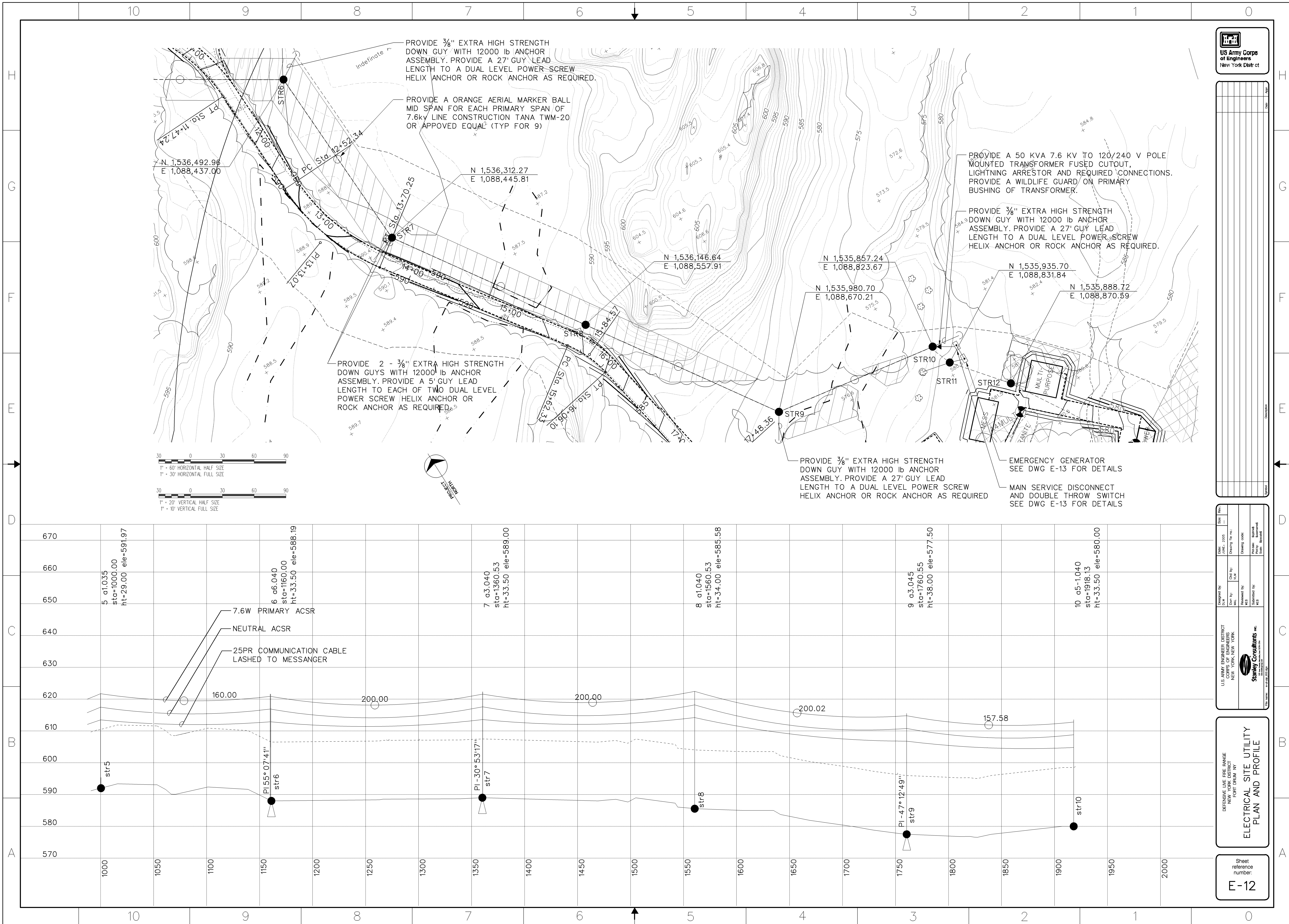
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WML	2005	WML	2005
WML	2005	WML	2005
WML	2005	WML	2005
WML	2005	WML	2005
WML	2005	WML	2005

DEFENSIVE LINE FIRE RANGE
NEW YORK DISTRICT
FORT DRUM NY

**ELECTRICAL SITE UTILITY
PLAN AND PROFILE**

Sheet
reference
number:
E-11

01-13222-07-DESIGN-08-DWG-08-ELEC-SHEETS E-UT-PP-012.DWG(01) DATE: 21-JUL-2005



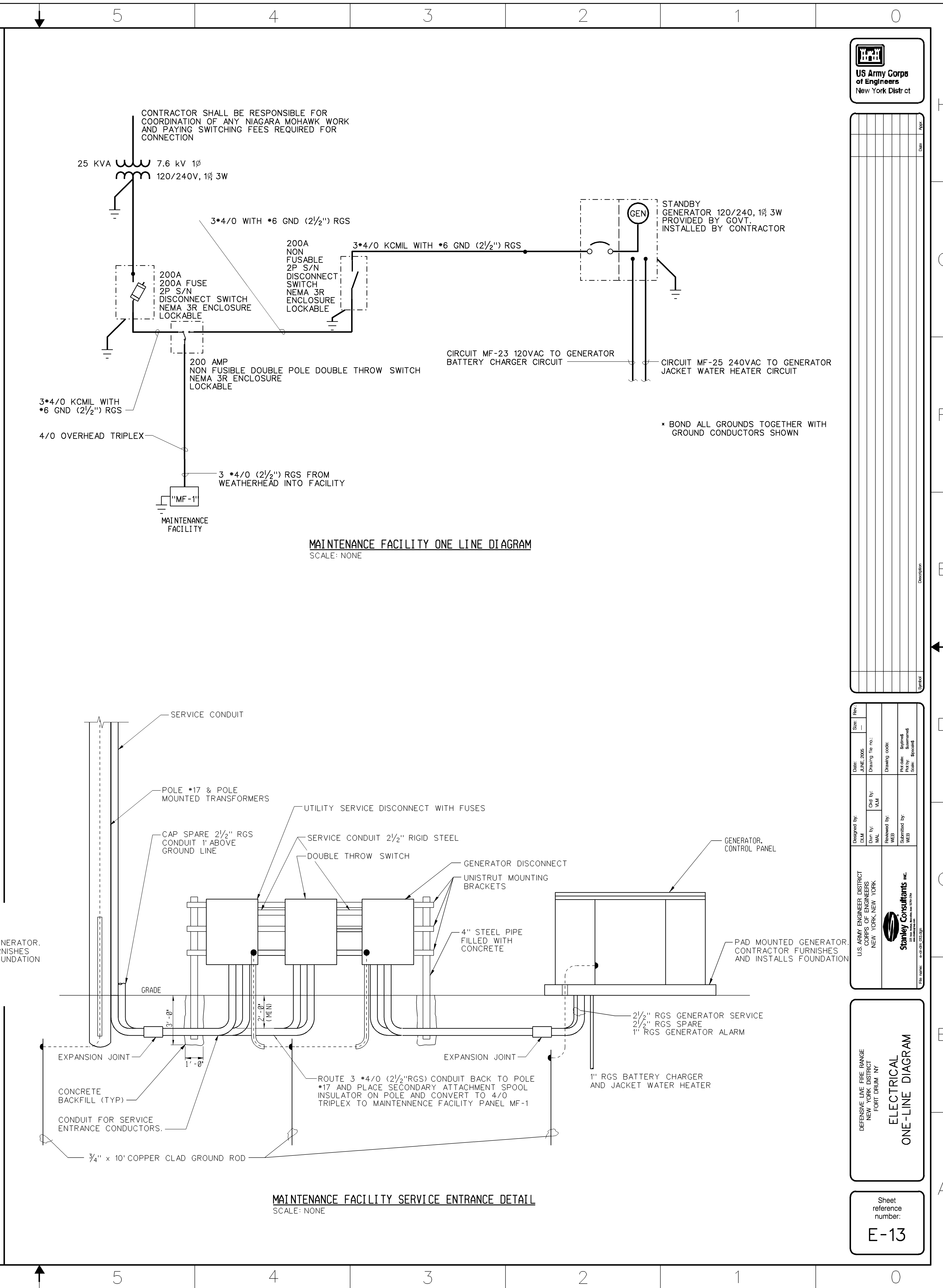
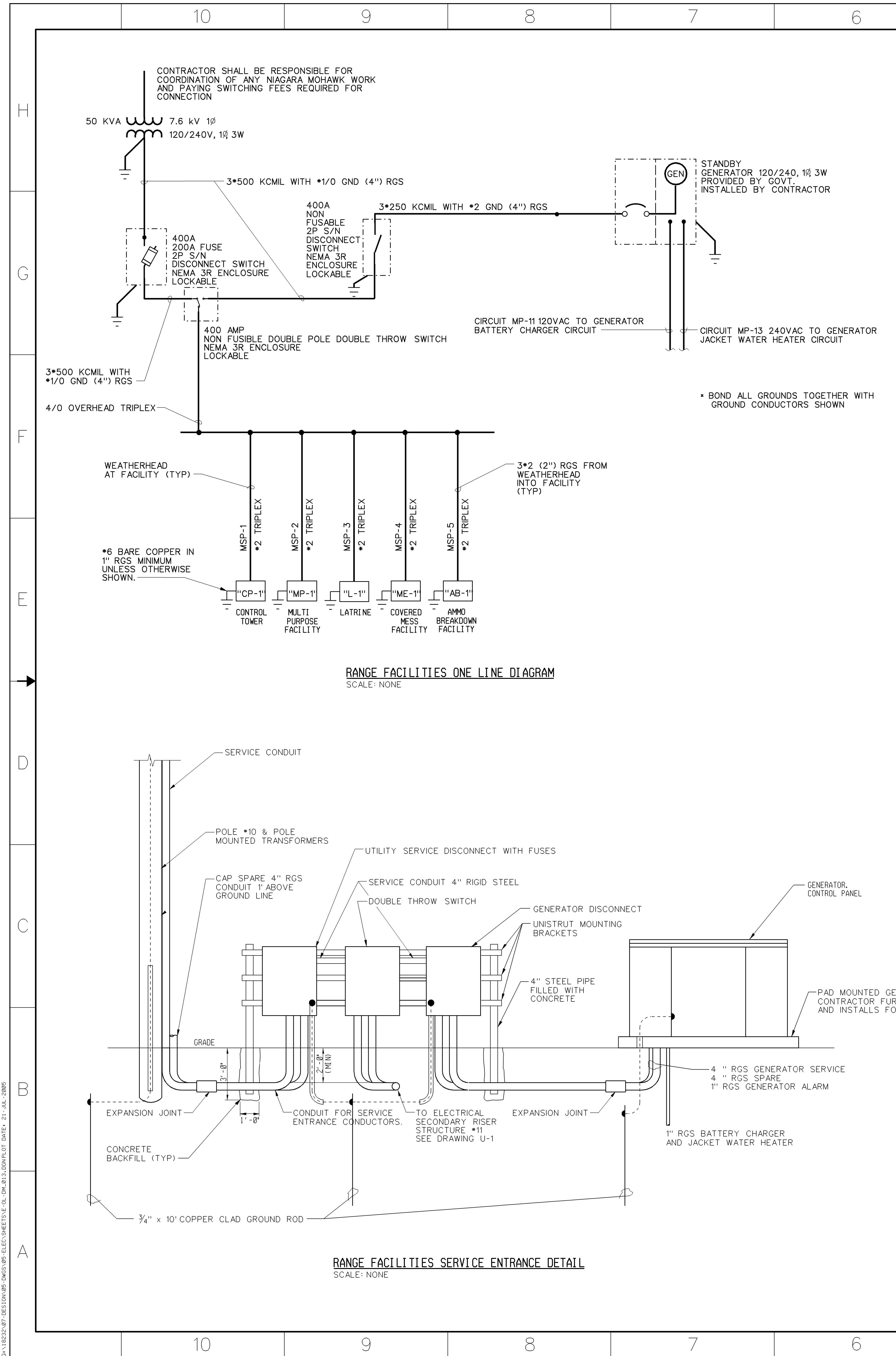
Rev	Desc	Date
1	Issue	2005

Designed by	Checked by	Drawn by	Scale
WAL	WAL	WAL	AS SHOWN
Reviewed by	Submitted by	Noted by	Noted by
WAL	WAL	WAL	WAL

DEFENSIVE LINE FIRE RANGE
FORT DRUM NY
ELECTRICAL SITE UTILITY
PLAN AND PROFILE

Sheet
reference
number:
E-12

01-13222-07 DESIGN/005-04053-005 ELEC SHEETS 15-01-014-013-004/017 DATED: 21 JUL 2005



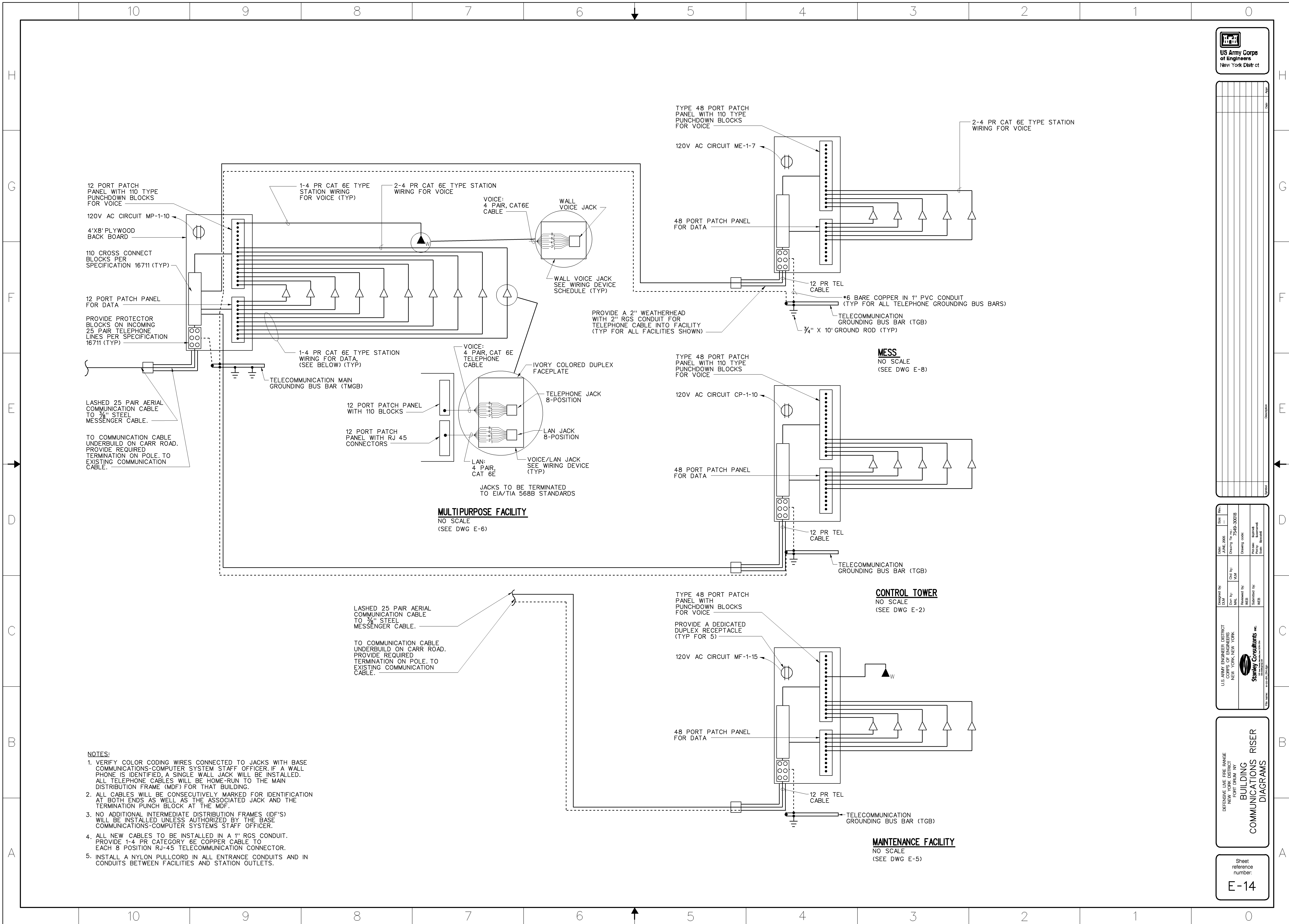
Rev	By	Date	Description
1	WAL	21 JUL 2005	DESIGN

Designed by WAL	Checked by MAL	Drawn by MAL	Scale As Shown
Reviewed by WEB	Submitted by WEB	Approved by WEB	Noted by WEB

DEFENSIVE LINE FIRE RANGE
FORT DRUM NY
ELECTRICAL
ONE-LINE DIAGRAM

Sheet
reference
number:
E-13

01-18222-07-DESIGN-001-DWG-001-ELEC-SHEETS-CORPUS-014-001-01 DATE: 21-JUL-2005



PANEL NAME:		LATRINE "L-1"		BUS RATING:		100 A		MOUNTING :		SURFACE	
SERVICE VOLTAGE:		120/240 VAC, 1 PH - 3 W		MAIN BREAKER:		100 A		MULTI-LUG:		N/A	
SOURCE NAME:		MAIN SERVICE DISCONNECT		NEMA TYPE:		3R		SERVICE ENTRANCE:		IG BUS: NO	
SOURCE LOCATION:		POLE #11		200% NEUTRAL:		YES		TVSS:		YES	
BRKR	CIRCUIT	LOAD		BRKR		PHASE (KVA)		LOAD (KVA)		LOAD	
NO.	DESCRIPTION	DESCRIPTION		RTG	A	B	LTG	RCPT	MTR	EQPT	FACTOR
1	2#12W#12 GRD 0.75°C	INFARED HEAT LAMPS		20A,1P	1.40		1.40				1.00
4	2#12W#12 GRD 0.75°C	LIGHTS		20A,1P	0.50	0.50					1.00
5	2#12W#12 GRD 0.75°C	RECEPTACLES (GFCI)		20A,1P	0.20			0.20			1.00
7	2#12W#12 GRD 0.75°C	EXHAUST FAN		20A,1P		0.50			0.50		1.00
9	2#10W#10 GRD 0.75°C	HEATER 5 TKW		30A,2P	0.00						1.00
11						0.00					1.00
13		SPARE		20A,1P	0.00						1.00
15		SPARE		20A,1P	0.00						1.00
17					0.00						1.00
2	2#12W#12 GRD 0.75°C	INFARED HEAT LAMPS		20A,1P	1.40		1.40				1.00
4	2#12W#12 GRD 0.75°C	LIGHTS		20A,1P	0.50	0.50					1.00
6	2#12W#12 GRD 0.75°C	RECEPTACLES (GFCI)		20A,1P	0.20			0.20			1.00
8	2#12W#12 GRD 0.75°C	EXHAUST FAN		20A,1P	0.00						1.00
10	2#10W#10 GRD 0.75°C	HEATER 5 TKW		30A,2P	0.00						1.00
12					0.00						1.00
14		SPARE		20A,1P	0.00						1.00
16		SPARE		20A,1P	0.00						1.00
18					0.00						1.00
LOAD TYPE		TOTAL CONNECTED (KVA)	TOTAL DEMAND (KVA)			3.2	1.5	KVA / PH			
						27	13	AMPS / PH			
LIGHTING:		3.8	3.8								
RECEPTACLE		0.4	0.4								
MOTOR:		0.5	0.5								
EQUIPMENT:		0.0	0.0								
TOTALS:		4.7	4.7								
				MINIMUM PANEL RATINGS							
LOAD		DEMAND FACTOR		RATED (KVA)		IMPACTITY (AMPS)					
6.4		1.25		8.0		33					

PANEL NAME:

SERVICE VOLTAGE:

SOURCE NAME:

SOURCE LOCATION:

AMMO BREAKDOWN "AB-1"

120/240 VAC, 1 PH - 3 W

MAIN DISCONNECT

POLE #11

BUS RATING:

MAIN BREAKER:

MINIMUM A.C.

NEMA TYPE:

SERVICE ENTRANCE:

100 A

100 A

18,000

3R

YES

NO

MOUNTING:

MULT-LUG:

IG BUS:

TVSS:

SURFACE

NA

NO

YES

BRKR	CIRCUIT	LOAD	BRKR	PHASE (KVA)			LOAD (KVA)			LOAD
NO.	DESCRIPTION	DESCRIPTION	RTG	A	B	LTG	RCPT	MTR	EQPT	FACTOR
1	2#12W#12 GRD 0.75°C	EXHAUST FAN	30A, 1P	0.00						1.00
3	2#12W#12 GRD 0.75°C	RECEPTACLES	20A, 1P	0.00						1.00
5	2#12W#12 GRD 0.75°C	LIGHTS	20A, 1P	0.00						1.00
7	2#12W#12 GRD 0.75°C	TVSS	60A, 2P	0.00						1.00
9				0.00						1.00
11		SPARE	20A, 1P	0.00						1.00
13		SPARE	20A, 1P	0.00						1.00
15				0.00						1.00
17				0.00						1.00

2	2#10W#12 GRD 0.75°C	HEATER, 3KW	30A, 2P	1.50					1.50	1.00
4					1.50					1.00
6	2#12W#12 GRD 0.75°C	RECEPTACLES (GFCI)	20A, 1P	0.00						1.00
8	2#12W#12 GRD 0.75°C	COMMUNICATION EQUIPMENT	20A, 1P	0.00		1.00			1.00	1.00
10		SPARE	20A, 1P	0.00						1.00
12		SPARE	20A, 1P	0.00						1.00
14				0.00						1.00
16				0.00						1.00
18				0.00						1.00

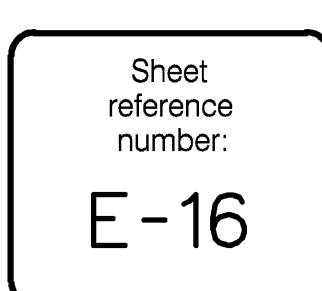
LOAD TYPE		TOTAL CONNECTED (KVA)	TOTAL DEMAND (KVA)
LIGHTING:		0.0	0.0
RECEPTACLE		0.0	0.0
MOTOR:		0.0	0.0
EQUIPMENT:		4.0	4.0
TOTALS:		4.0	4.0

MINIMUM PANEL RATINGS			
LOAD	DEMAND FACTOR	RATED (KVA)	AMPACITY (KMPs)
5.0	1.25	6.3	26

NOTE:

PROVIDE TVSS PROTECTION AT EACH PANEL.
PROTECTION TO BE 160KA AT PANEL, FIVE MODE,
WITH LED INDICATION.

100

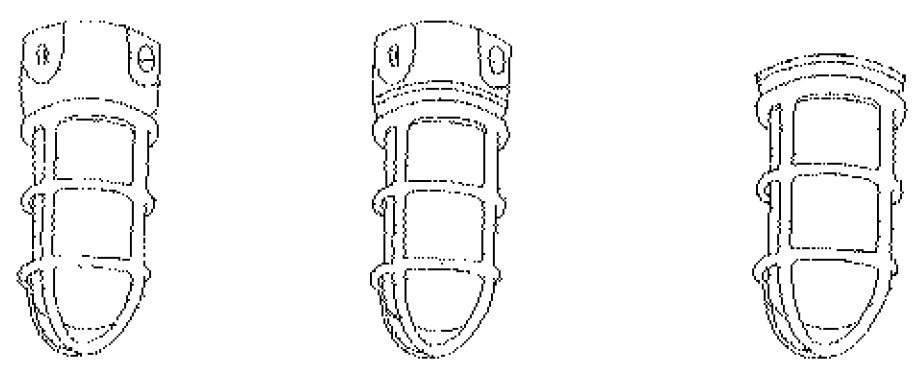


01-18222-07 DESIGN AND ELECTRICAL SHEETS 15-151-01-0162-05 (REV. 21 JUL 2005)

H
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CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



TYPE 106	TYPE 107	TYPE 108
Integral Outlet Box	Exposed Gasketed Outlet Box	Concealed Standard Outlet Box
Enclosed and Gasketed (Vapor-tight) Industrial Incandescent Fixtures		
Suffix	Description	
A	Ceiling mounted	
B	Wall mounted	
C	Pendant mounted	

Type 106 fixture body shall be constructed with an enclosed and gasketed chamber as an integral part of the body which shall serve as an outlet box. Fixture shall be suitable for wet locations.

Type 107 fixture shall be suitable for mounting on an exposed, enclosed, and gasketed conduit outlet box. Fixture shall be suitable for wet locations.

Type 108 fixture shall be suitable for mounting on a concealed standard outlet box. Fixture shall be suitable for wet locations.

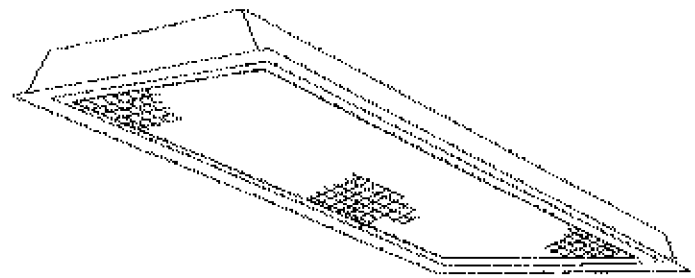
Type 106, 107, and 108 fixtures shall conform to UL 1571 and shall be provided with a cast aluminum guard of adequate rigidity and strength. A guard shall be attached to the fixture so that its permanence of position is assured. Wattage rating of the fixture shall be as indicated on contract documents.

Fixture types indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

FEBRUARY 1991 STD. DET. NO. 40-06-04 SHEET 3

CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



TYPE 206		TYPE 207	
Static Troffer		Air Handling Troffer	
Recessed Fluorescent Fixture, 2-foot by 4-foot			
First Suffix	Second Suffix	Third Suffix	Description
A			Two lamps
B			Three lamps
C			Four lamps
	1		Prismatic acrylic lens
	2		1/2- by 1/2- by 1/2-inch cube louver
	3		1/2- by 1/2- by 1/2-inch polystyrene cube louver
		A	Type 200 emergency unit

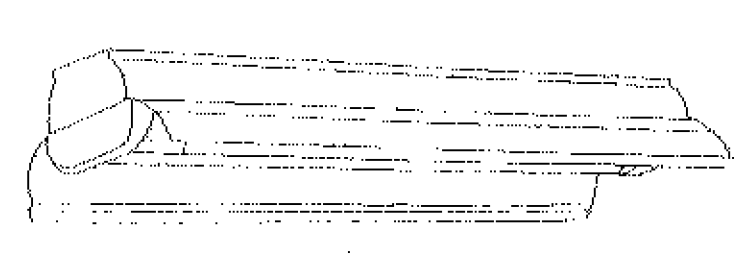
Fixture shall conform to UL 1570. Housing shall be complete with integral side trim flanges. Housing and trim flanges shall be cold-rolled steel. The lens or louver shall be installed in a manner that will prevent it from coming loose due to vibration. The ballasts and wiring shall be enclosed in a wireway that is continuous throughout the length of the fixture and which forms a wireway for circuits through the fixture. All metal parts shall receive a rust inhibitive coating before application of the finish coat. The finish coat shall be baked enamel. Lenses and acrylic cube louvers shall be 100 percent virgin acrylic plastic. The lens or louver shall be four feet in length. Acrylic lens shall be flat, 0.125 inch nominal thickness, low brightness, with smooth top surface and a lower surface having a regular array of prismatic elements. Two-lamp ballasts shall be used for individually mounted two-lamp fixtures. Standard ballast(s) shall be the Class P, high power factor type which has been approved for the application by the Certified Ballast Manufacturers. Fixture shall be provided.

Fixture types indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

SEPTEMBER 1991 STD. DET. NO. 40-06-04 SHEET 20
CHANGE 1

CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



TYPE 230 Suspension Mounted, Industrial, Open Type Fluorescent Fixture, 4-Foot		
First-Suffix	Second-Suffix	Description
A		Two lamps
B		Three lamps
	1	8 to 15 percent uplight
	2	18 to 25 percent uplight

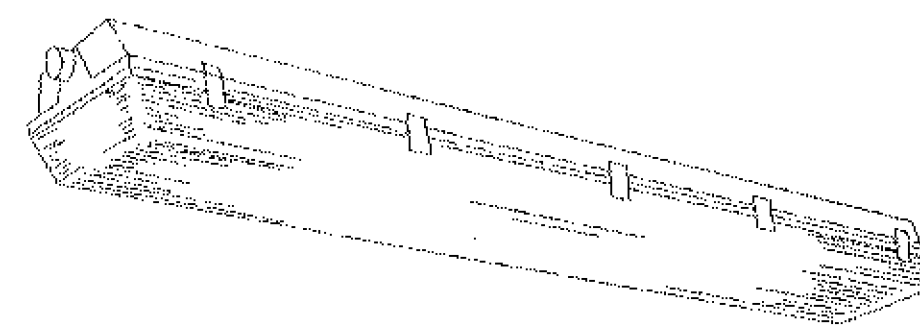
Fixture shall conform to UL 1570. Standard ballast(s) shall be the Class P, high power factor type approved for the application by the Certified Ballast Manufacturers. Channel housing, end fittings, and reflector shall be constructed with die-formed, cold-rolled steel. Reflector finish shall be porcelain enamel, baked white enamel or aluminum oxide. Sockets shall be of the type requiring a forced movement along the longitudinal axis of the lamp for insertion and removal of the lamp. Fixture shall be provided. Fluorescent tubes shall be protected by a virgin acrylic protective sleeve and clear plastic vented end caps.

Fixture type indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

FEBRUARY 1991 STD. DET. NO. 40-06-04 SHEET 36

CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



TYPE 232	TYPE 233
4-Foot Fixture Length	8-Foot Fixture Length
Enclosed and Gasketed, Vapor-Tight Fluorescent Fixture For Surface or Pendant Mounting	

Fixture shall conform to UL 1570 and shall be vapor-tight and suitable for use in wet locations. Fixture shall have one-piece housing of molded high-impact plastic or reinforced fiberglass. Housing body shall have an internal, die-formed, cold-rolled steel channel with cover to provide fixture rigidity and to contain electric components. The metal channel and cover shall receive a rust inhibitive coating before application of the finish coat, which shall consist of baked white enamel or porcelain enamel. The lens shall be one piece, of high-impact-resistant acrylic, and shall have smooth exterior surface and stippled or pebbled interior surface. The lens shall be secured to the housing with captive molded plastic or stainless steel spring latches. A continuous gasket shall be provided to form a vapor seal between the lens and the fixture body. All openings in the housing for mounting, conduit, etc., shall be capable of forming a vapor-tight seal. Ballast(s) shall be cold weather type for starting temperatures down to minus 20 degrees F. Standard ballast(s) shall be the Class P, high power factor type approved for the application by the Certified Ballast Manufacturers. Fixture shall be provided, and provided with lamps that are properly mated to the ballast operating characteristics.

Fixture types indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

FEBRUARY 1991 STD. DET. NO. 40-06-04 SHEET 38



Rev	By	Date	Rev	By	Date
1	WML	10/1/91	1	WML	10/1/91
2	WML	10/1/91	2	WML	10/1/91
3	WML	10/1/91	3	WML	10/1/91
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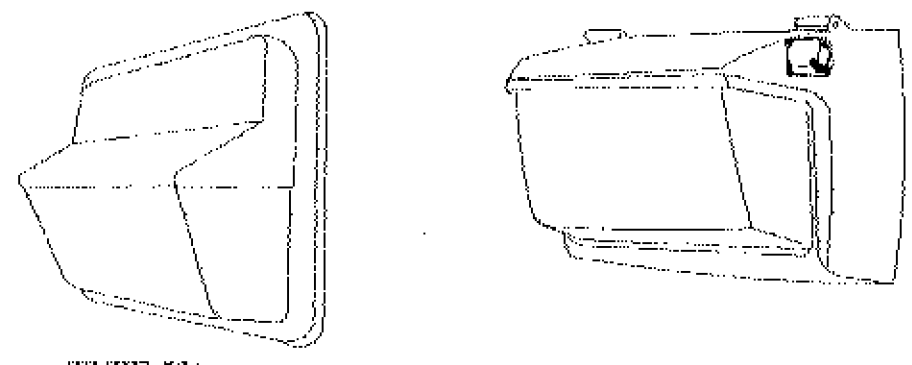
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Rev	By	Date	Rev	By	Date
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9	WML	10/1/91	9	WML	10/1/91
10	WML	10/1/91	10	WML	10/1/91

Sheet reference number:
E-16A

CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



TYPE 501	TYPE 502
High Intensity Discharge Fixture for Exterior Wall Mounting, Medium Output	High Intensity Discharge Fixture for Exterior Wall Mounting, Medium Output
Suffix	Description
A	Rated for:
B	50 watt high pressure sodium lamp
C	70 watt high pressure sodium lamp
D	100 watt high pressure sodium lamp
E	150 watt high pressure sodium lamp
	175 watt metal halide lamp

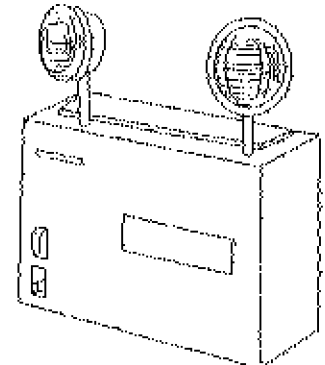
Fixture shall conform to UL 1572 and shall be rated for use in wet locations. The fixture housing, door assembly, and backplate shall be die-cast aluminum. The door assembly shall have integral cast aluminum hinges. The door assembly shall be held securely to the fixture housing with a stainless steel safety strap when the door is in the open position. The door assembly shall be held firmly against a sealing gasket between the fixture door and housing by stainless steel latches or with stainless steel or brass captive screws when the fixture door is closed. The refractor shall be prismatic borosilicate glass or polycarbonate resin. The refractor shall be gasketed and securely held in the door frame, but shall be easily removed for replacement with a common tool. The reflector shall be aluminum with the manufacturer's standard commercial product finish suitable for the type and rating of the lamp. The fixture shall have manufacturers standard protective coating. Cast knockouts shall be provided in the backplate for recessed outlet box mounting. Ballast shall be of the high power factor type. Ballast shall be of the lead-peak autotransformer type metal halide for lamps and the regulating type for high pressure sodium lamps. Ballast shall be capable of starting and operating the lamp at ambient temperatures from minus 20 degrees F to 105 degrees F. The fixture shall be provided, and shall have a field adjustable, mogul base glazed porcelain lampholder.

Fixture types indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

FEBRUARY 1991 STD. DET. NO. 40-06-04 SHEET 56

CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



TYPE 603
6-Volt Emergency Battery Pack Unit with Two Floodlights

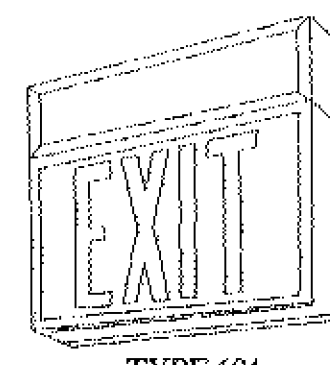
Unit shall conform to UL 924, NFPA 101, and shall meet or exceed the NFPA 70 time and voltage requirements. The unit shall be dual-rated for use on either 120-Volt or 277-Volt alternating current power supplies. Following sustained loss of the normal power supply, the unit shall be capable of automatically and instantaneously illuminating the two 6-Volt lighting fixtures for a period of not less than 90 minutes at a battery voltage in excess of 87.5 percent of the nominal voltage rating. The battery shall be the nickel-cadmium, pocket plate type designed to be maintenance free during the expected battery life, and shall be warranted for not less than 3 years from the date of the purchase of the unit, and shall be field replaceable without requiring removal of other components. The battery charger shall be the solid-state type and shall provide a continuous, variable, current limited, filtered and regulated charge rate. The battery and charger shall be contained in a steel cabinet not less than 18 gauge thickness with an enamel finish, unless otherwise approved, which shall be equipped with a push-to-test switch and a meter to indicate battery voltage when the switch is closed. Mounting brackets or shelf shall be provided, complete with all mounting hardware, all with a finish to match the finish or color of the cabinet. The unit shall be provided and equipped with two 6-volt, 5-8 watt floodlights as indicated.

Fixture type indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

SEPTEMBER 1991 STD. DET. NO. 40-06-04 SHEET 65
CHANGE 1

CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



Exit Sign With Self-Contained Emergency Battery		
First Suffix	Second Suffix	Description
A		Single face
B		Double face
	1	End mounted
	2	Top mounted
	3	Back mounted
	4	Stem mounted

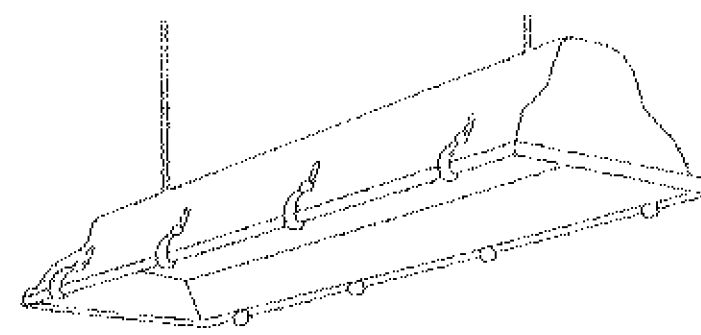
Unit shall conform to UL 924, NFPA 101, and shall meet or exceed the NFPA 70 time and voltage requirements. The unit shall be dual-rated for use on either 120-Volt or 277-Volt alternating current power supplies. Following sustained loss of the normal power supply, the unit shall be capable of automatically and instantaneously illuminating the two 6-Volt lighting fixtures for a period of not less than 90 minutes at a battery voltage in excess of 87.5 percent of the nominal voltage rating. The battery shall be the nickel-cadmium, pocket plate type designed to be maintenance free during the expected battery life, and shall be warranted for not less than 3 years from the date of the purchase of the unit, and shall be field replaceable without requiring removal of other components. The battery charger shall be the solid-state type and shall provide a continuous, variable, current limited, filtered and regulated charge rate. The battery and charger shall be contained in a steel cabinet not less than 18 gauge thickness with an enamel finish, unless otherwise approved, which shall be equipped with a push-to-test switch and a meter to indicate battery voltage when the switch is closed. Mounting brackets or shelf shall be provided, complete with all mounting hardware, all with a finish to match the finish or color of the cabinet. All ferrous metal parts shall receive a rust inhibitive coating before application of the finish coat. The fixture shall have a light-emitting diode pilot light to show that the battery charger is functioning. Fixture shall be provided, with wiring concealed in the illuminated portion of the fixture housing.

Fixture type indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

SEPTEMBER 1991 STD. DET. NO. 40-06-04 SHEET 66
CHANGE 1

CORPS OF ENGINEERS

DEPARTMENT OF THE ARMY



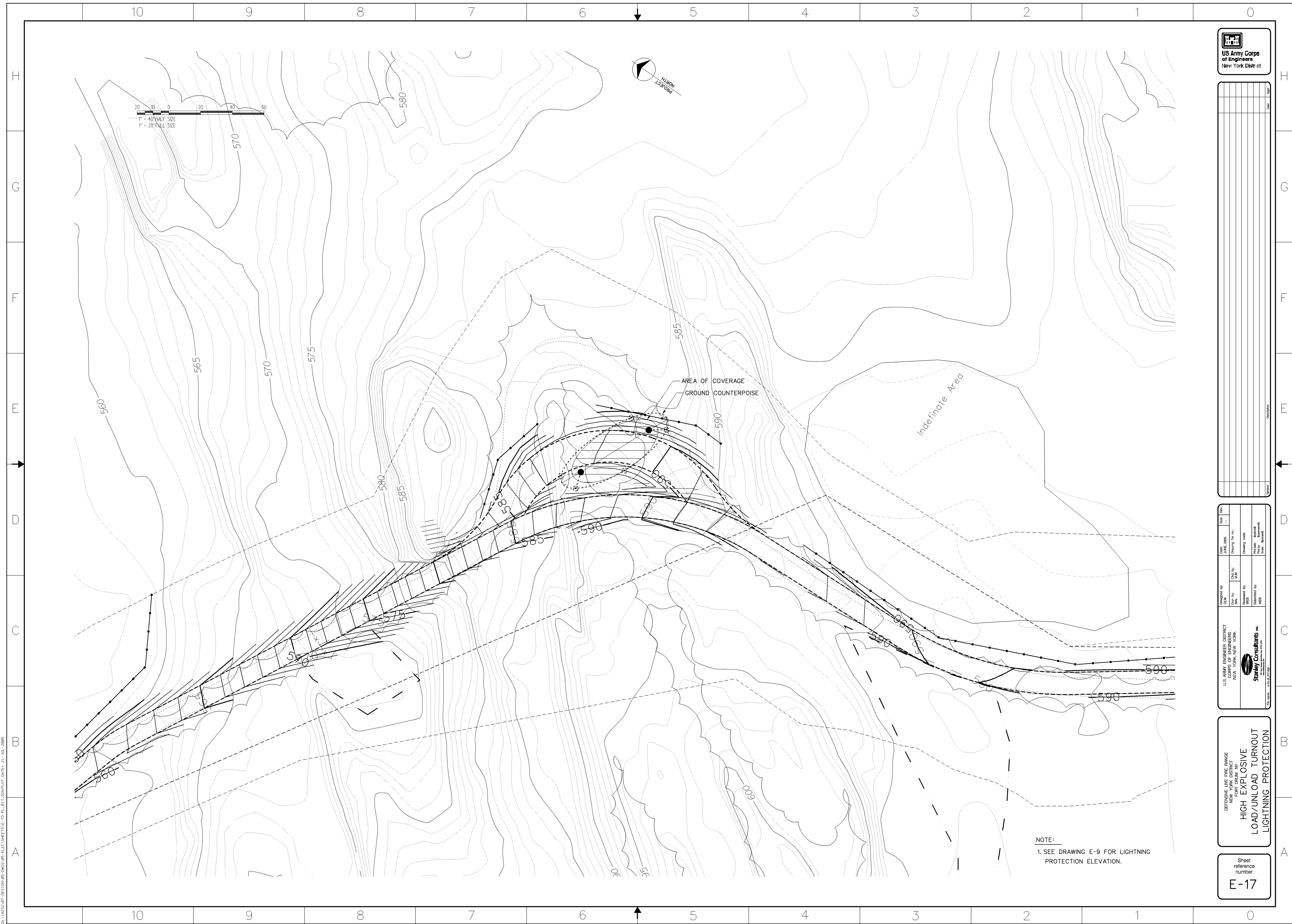
TYPE 710	
Pendant Mounted, Industrial Fluorescent Fixture For Use In NEC Class II, Group F and G and Class III Locations	
Suffix	Description
A	Two lamps
B	Three lamps

Fixture shall conform to UL 844 for use in NEC Division 1 and 2 locations. Housing shall be fabricated in one piece of 20 gage steel using seamless welded construction. Fixture shall be of standard construction for use in noncorrosive areas. All interiors and exterior metallic surfaces, including reflector and wireway cover, shall be finished with white porcelain enamel. The doorframe shall be 16 gage zinc plated steel. All metallic surfaces shall receive a rust inhibiting coating before application of finish coat. The door frame shall have a full neoprene gasket between flat surfaces of the frame and the housing. The lens shall be 1/4 inch thick tempered and impact resistant glass. Ballast shall be thermally protected or fuse protected. Any fuses shall be installed in fuse holders that will not permit fuse connections to be accessible when the fuses are removed. Lamp holders shall be white area plastic. The lens shall be sealed in the door frame. The doorframe shall be hinged and shall be held tightly sealed to the housing with stainless steel clamps. Fixture shall be provided.

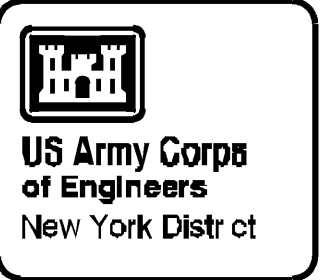
Fixture type indicated on this sheet shall also conform to requirements specified and indicated in the contract documents.

FEBRUARY 1991 STD. DET. NO. 40-06-04 SHEET 72

01-18222-07 DESIGN/06-0403-08-01 ELEC SHEETS (E-10) PL-017, 004/01, 017, 018, 019, 020, 021, 022, 023, 024, 025, 026, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 039, 040, 041, 042, 043, 044, 045, 046, 047, 048, 049, 050, 051, 052, 053, 054, 055, 056, 057, 058, 059, 060, 061, 062, 063, 064, 065, 066, 067, 068, 069, 070, 071, 072, 073, 074, 075, 076, 077, 078, 079, 080, 081, 082, 083, 084, 085, 086, 087, 088, 089, 090, 091, 092, 093, 094, 095, 096, 097, 098, 099, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000



NOTE:
1. SEE DRAWING E-9 FOR LIGHTNING
PROTECTION ELEVATION.



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DEFENSIVE LINE FIRE RANGE
FORT DRUM NY
HIGH EXPLOSIVE
LOAD/UNLOAD TURNOUT
LIGHTNING PROTECTION

Sheet
reference
number:
E-17

UP - FLOW FURNACE (FRN) SCHEDULE												
PLAN DESIGNATION	MANUFACTURER	MODEL	SUPPLY FAN DATA								VOLT/HZ/PH	NOTES
			FLOW RATE (CFM)	MINIMUM OUTDOOR AIR (CFM)	EXTERNAL STATIC PRESSURE (IN WG)	MOTOR POWER (HP)	GAS INPUT (MBH)	HEATING OUTPUT (MBH)	EAT (DEG. F)	LAT (DEG. F)		
FRN-1	TRANE	TUX100	2330	560	0.25	3/4	100	93	46.8	83.6	120/60/1	(1) (2) (3)
FRN-2	TRANE	TUX060	1040	190	0.7	1/3	60	56	51.8	104.4	120/60/1	(1) (2) (3)
FRN-3	TRANE	TUX060	850	170	0.9	1/3	60	56	50.4	111	120/60/1	(1) (2) (3)
FRN-4	TRANE	TUX120	1930	285	0.9	3/4	120	113	55	109	120/60/1	(1) (2) (3)
NOTES:												
(1) UNIT TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS												
(2) PROVIDE HORIZONTAL UNIT												
(3) PROVIDE SEALED COMBUSTION TYPE UNIT. PROVIDE COMBUSTION AIR AND EXHAUST VENT TERMINALS AS RECOMMENDED BY MANUFACTURER												

ELECTRIC INFRARED HEATER SCHEDULE						
PLAN DESIGNATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	HEATING CAPACITY (KW)	VOLTS/HZ/PHASE	NOTES:
IH-4	LATRINE	Q-MARK	CHRR35724	6.7	240/60/1	(1) (2) (3)
IH-6	LATRINE	Q-MARK	CHRR35724	6.7	240/60/1	(1) (2) (3)
NOTES: (1) MOUNT BOTTOM OF UNIT MINIMUM OF 6'-0" ABOVE FINISHED FLOOR (2) PROVIDE MINIMUM CLEARANCE OF 24" BETWEEN SIDES OF UNIT AND WALLS (3) PROVIDE MINIMUM CLEARANCE OF 24" BETWEEN TOP OF UNIT AND CEILING						

HEATING ONLY FAN COIL UNIT (FCU) SCHEDULE											
PLAN DESIGNATION	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	AIRFLOW (CFM)	MOUNTING POSITION	SUPPLY AIR POSITION	RETURN AIR POSITION	MOTOR SIZE (HP)	HEATING CAPACITY (KW)	VOLTS/HZ/PHASE	NOTES
FCU-2	CONTROL TOWER	TRANE	UHWA 031B	230	SURFACE MOUNTED	N/A	N/A	N/A	3	240/60/1	(2)
FCU-3	MULTI-PURPOSE BLDG.	TRANE	UHWA 021B	230	RECESSED MOUNTED	N/A	N/A	N/A	2	240/60/1	(1)
FCU-4	MULTI-PURPOSE BLDG.	TRANE	UHWA 021B	230	RECESSED MOUNTED	N/A	N/A	N/A	2	240/60/2	(1)
NOTES: 1) PROVIDE REQUIRED ACCESSORIES FOR RECESSED WALL INSTALLATION 2) PROVIDE REQUIRED ACCESSORIES FOR SURFACE MOUNTED TO WALL INSTALLATION											

FAN (EF, SF, PRE) SCHEDULE												
PLAN DESIGNATION	TYPE	SERVICE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	FLOW RATE (CFM)	EXTERNAL STATIC PRESSURE (in. w.g.)	RPM	BRAKE POWER (hp)	MOTOR POWER (hp)	ELECTRICAL (V/Hz/PHASE)	SOUND LEVEL (SONES)	NOTES
EF-1	UPBLAST CENTRIFUGAL WALL	LATRINE	LOREN COOK	ACWD 90W16DH	180	0.25	1,009	0.078	1/8	120/60/1	2.8	(1) (3) (4) (6) (6)
EF-2	UPBLAST CENTRIFUGAL WALL	LATRINE	LOREN COOK	ACWD 90W16DH	180	0.25	1,009	0.078	1/8	120/60/1	2.8	(1) (3) (4) (6) (6)
EF-3	UPBLAST CENTRIFUGAL WALL	BATTERY ROOM	LOREN COOK	ACWD 90W16DH	210	0.25	1,037	0.08	1/8	120/60/1	3.1	(1) (2) (3) (4) (6) (6)
NOTES: (1) DIRECT DRIVE (2) PROVIDE EXPLOSION PROOF RATED MOTOR AND ELECTRICAL ACCESSORIES AND SPARK PROOF FAN CONSTRUCTION (3) PROVIDE UNIT MOUNTED DISCONNECT SWITCH (4) PROVIDE GRAVITY BACKDRAFT DAMPER (5) PROVIDE BIRD SCREEN (6) PROVIDE UNIT-MOUNTED FAN SPEED CONTROLLER FOR SYSTEM BALANCING												

DEFENSIVE LIFE FIRE RANGE
NEW YORK NEW YORK
FORT DRUM NY

Sheet
reference
number:

M-1

U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
NEW YORK NEW YORK

MECHANICAL
SCHEDULES

Designed by: _____
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Drawn by: _____
Date: _____

Reviewed by: _____
Date: _____

Submitted by: _____
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